TRANSIT ISSUE: REPORT FROM PITTSBURGH p. 16

FEBRUARY 7, 1966

RAILWAY AGE

WEEKLY

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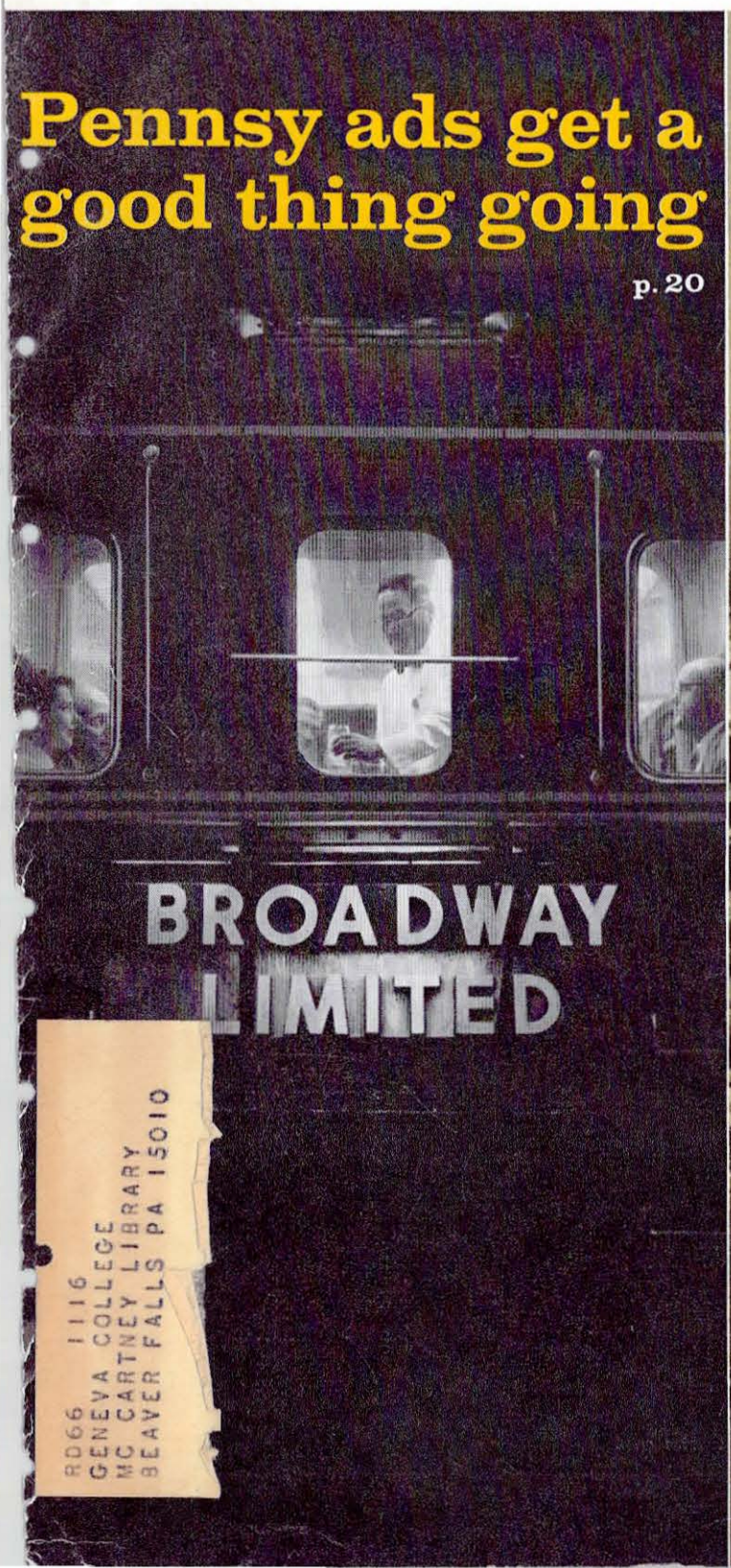
Pennsy ads get a good thing going

p. 20



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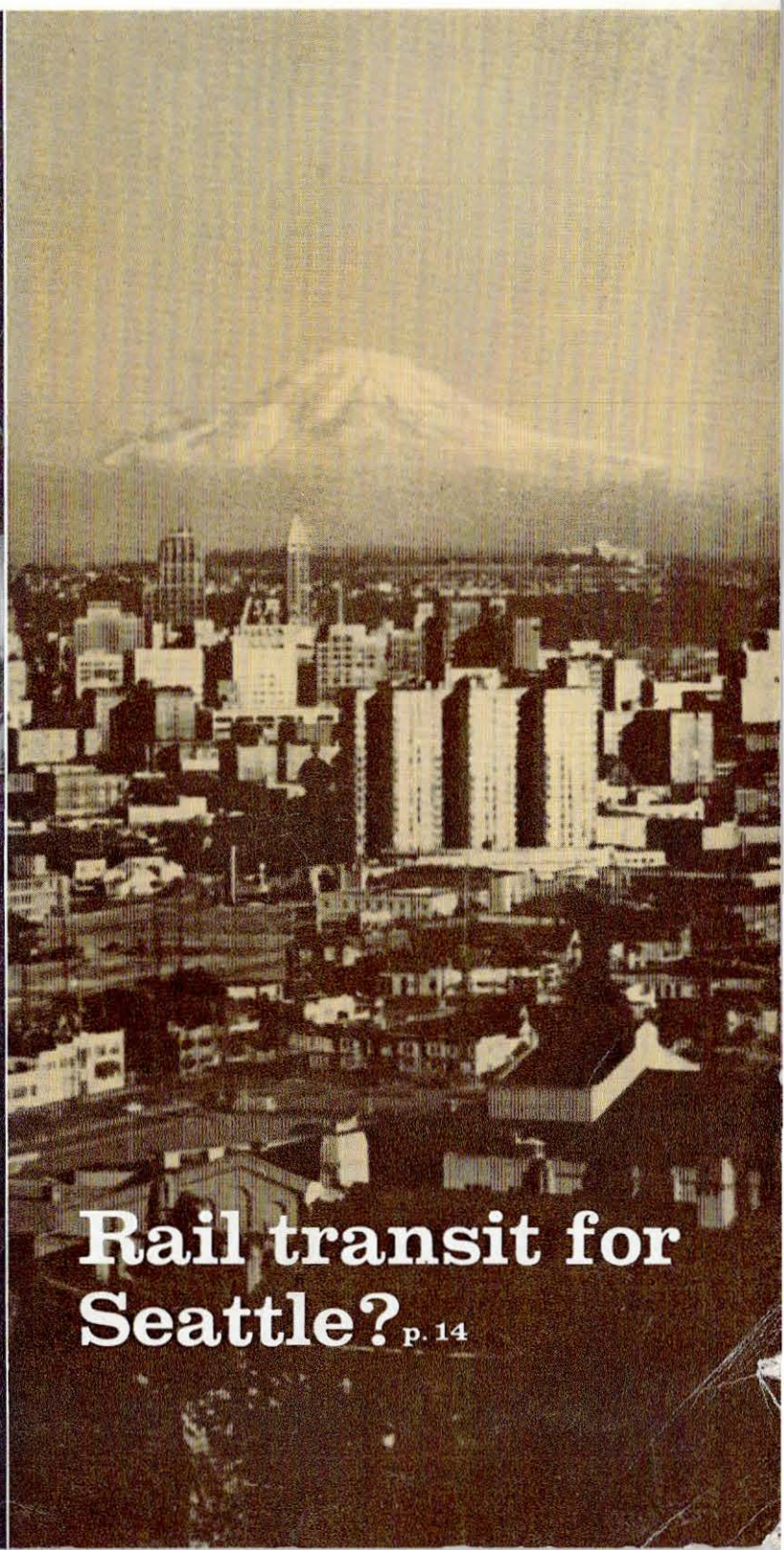
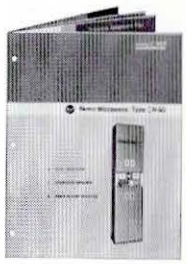


Rail transit for Seattle?

p. 14

RCA cuts your microwave maintenance

Cut back on your maintenance costs and get better communications with RCA's CW-60 Total Solid State Heterodyne Microwave (today's only *tubeless* 6 KMC microwave system in production and in service). Here's why—CW-60 heterodyne repeater design eliminates baseband regulators and automatic frequency controls. You don't need them. And heterodyne operation gives you better communications clarity, no distortion, constant signal levels over distances of 100 or 1,000 miles. Unprecedented reliability, too, with total solid state design. No power-consuming klystrons and power supplies. There isn't a single tube or mechanical relay in the entire system. And best news of all—*a CW-60 heterodyne system costs no more than a "transistorized-with-klystron" system.*



Find out what else is "in," what's "out" in RCA CW-60 Microwave. Send for this fact-filled booklet containing complete system descriptions and operating specifications. Write RCA Microwave, Dept. **G-95,**Bldg. 15-5, Camden, N.J. 08102

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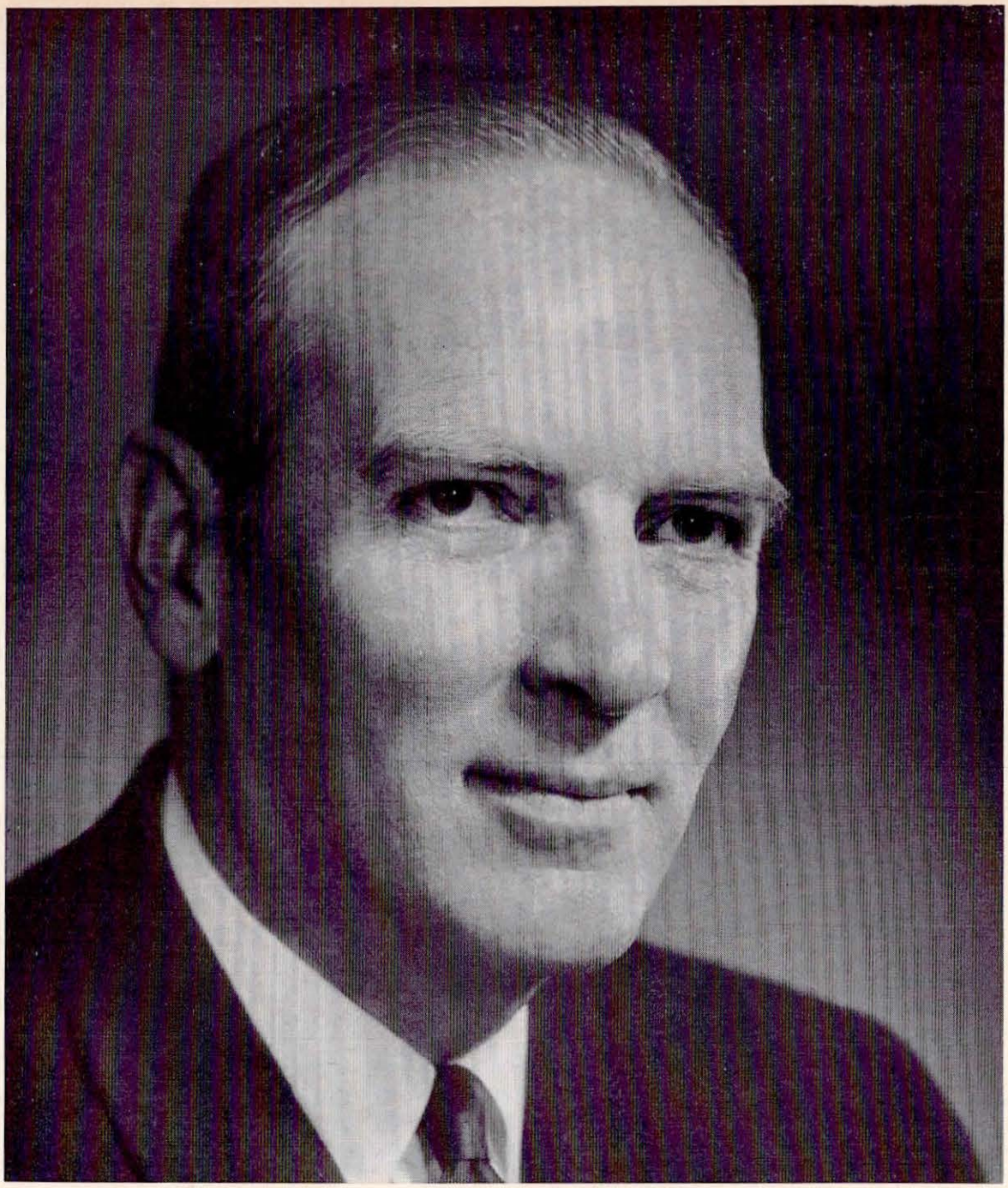
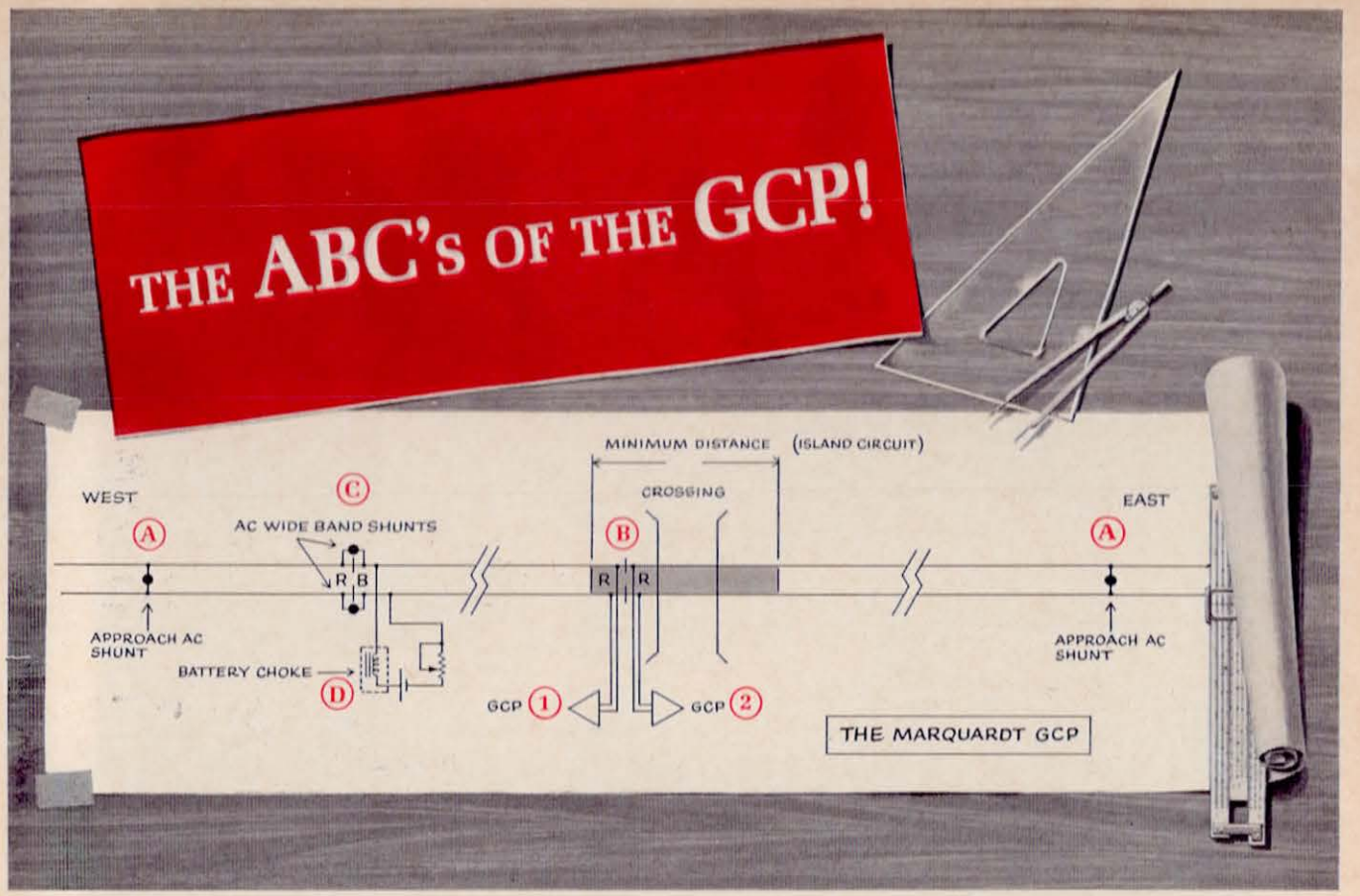


JOHN M. BUDD, PRESIDENT
Great Northern Railway

"So great is the ferment of news in the railway industry today—both on its broad fronts and in its diverse technical areas—that keeping adequately informed is one of the prime challenges to all levels of our management.

"In helping us to take the measure of that challenge, Railway Age is to be particularly commended for the timeliness, the reliability and the competence with which it reports and interprets the developments which shape our destiny."

John M. Budd



This is how the Marquardt Grade Crossing Predictor (GCP) provides fail-safe crossing protection and reduces highway traffic delays.

The Marquardt GCP is a solid state analog control system, designed to compute speed and position of an approaching train, predict its arrival at the crossing, and activate the warning system.

The train is approaching the crossing from the west. The Grade Crossing Predictor number (1) senses an impedance corresponding to the distance from the crossing to (A) the approach shunt. As the train enters the GCP circuit, it acts as a "moving" shunt, reducing the impedance as it approaches the crossing.

Since each GCP is constantly measuring the impedance level as well as the rate of change, it can predict the train's arrival at the crossing and activate the protection system at the pre-selected warning time. Uniform warning time on constant speed trains is thus provided regardless of the train speed.

Should the train stop in the approach, the GCP no longer senses a change in impedance. An already-activated warning system will be cleared within seconds. If the warning system was not activated, of course, nothing happens. As the train resumes its approach to the crossing, the GCP again senses the impedance change and immediately activates the warning system. The warning devices will be deactivated as the last trucks clear the minimum distance (island circuit). If the train reverses direction after having gone through the crossing, Grade Crossing Predictor number (2) takes over. Highway traffic is resumed with minimum delay.

BASIC FEATURES OF THE GCP SYSTEM

▪ *Note that only two insulated joints (B) are actually required for GCP operation. These serve to isolate one approach from the other, establishing a defined circuit from the joints to the approach shunt (A).* ▪ *Where other insulated joints exist in the GCP approach circuit, AC wide band shunts (C) are used to bypass these joints, thus providing a complete circuit down one rail, through the approach shunt, and back the other rail to the GCP. The shunts are 80,000 microfarad capacitors which block the DC signal. These are encapsulated and waterproofed for burial below the frost line alongside the track.*

▪ *Where a battery is connected to the track, a battery choke (D) is installed in series with one of the battery leads. This prevents the AC signal from shorting through the battery. The choke has a high impedance to AC, and because of its low resistance (0.25 ohms), it has little effect on the DC circuit.*

▪ *The approach AC shunts (A), connected from rail to rail, complete the GCP circuit. They are located at a distance from the crossing corresponding to maximum train speed and required warning time.*

▪ *Built-in self-check system insures fail-safe GCP operation. The system simulates an approaching high speed train every 4.5 seconds, even when a train is on the track. Should a malfunction occur, the warning system is immediately activated.*

Write or call your Marquardt representative today. Ask him to show you how the Grade Crossing Predictor can meet your specific crossing protection requirements.

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RAILWAY AGE February 7, 1966 • Vol. 160, No. 5

THIS WEEK

14 Seattle looks sold on rail transit plan
Consulting engineers have recommended a $171 million system, and the local reaction to the project is good.

17 Pittsburgh conference looks at transit
Some top transit men with some good ideas got together last week in Pittsburgh for a precedent-setting session.

20 Pennsy ads get a good thing going
The road's celebrated 'Broadway Limited' was losing ground to the airlines until a smart ad campaign perked up traffic.

24 NYCTA tests Pioneer truck
The Budd-designed Pioneer III trucks are being tested on four cars to determine savings in power and maintenance costs.

25 How Bob Smart Invented the Train—A Fable
Most members of the public do not appreciate the basic logic of trains. This fable is intended for them.

42 The Action Page—How to help people think about railroads
Railroads are strongly qualified to be the basic transportation method of the future, but the man in the street must be made to realize it.

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Western Hemisphere's first automated urban mass transit system ...and he could run it

On April 28, 1967, the Montreal World Exhibition will unveil a new world wonder—an urban mass transit system so completely automated that an eight-year-old could boss the whole route. What's the heart of it? An integrated, highly sophisticated signal and control system designed and installed by WABCO's Union Switch & Signal Division.

Eight six-car trains will whisk as many as 30,000 visitors an hour over a 3½ mile route serving five Exhibition stations. All scheduling, dispatching, routing and braking will be governed by WABCO's Operation Control. This nerve center combines with other WABCO subsystems to monitor speeds and distances between trains with an accuracy and efficiency not possible with manual controls.

Transit modernization brought within reach by WABCO's "Building Blocks"

A city faced with the problem of bridging the gap between an older transit system and a completely automated system can accomplish this task by tackling it *in increments*. By replacing obsolete equipment with modern WABCO "building block" devices on a piecemeal basis, service, safety and efficiency gradually improve *without* straining the budget. Recent WABCO innovations in this field include a revolutionary suspension system, new automatic switches, couplers and braking systems (electric or air), plus computerized dispatching, routing and speed controls.

WABCO's Mass Transit Center has a full range of experience to lend to your problem—from early-stage guidance in funding transit projects to the most advanced technology in improving the efficiency of a system. A WABCO engineering team would like the chance to discuss your transit needs with you. Write or call: *WABCO Mass Transit Center, Westinghouse Air Brake Co., Pittsburgh, Pa. 15218. • 412-242-3434*

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SHORT AND SIGNIFICANT

ORC&B wins again—but it's close

Two more representation votes—these on Spokane International—have gone for the Order of Railway Conductors & Brakemen and against the Brotherhood of Railroad Trainmen. The BRT challenged ORC&B's representation of both road conductors and brakemen—but the smaller union retained the conductors' contract on a 4-4 tie vote and held onto representation rights for brakemen by a 13-10 count. Still in the works is a BRT challenge for the contract for road brakemen on Great Northern, now held by the Conductors. But the double victory on SI has added to the ORC&B's confidence—and it brought on a different kind of challenge from President George H. Harris: "When will the BRT stop its costly, fruitless raids? . . . At a time when we are striving to improve the working conditions of road conductors and road brakemen on all properties where we hold the contract, we are forced to defend our representation rights by this senseless raiding by the president of the BRT. . . . ORC&B men would rather fight than switch organizations, but we would prefer that our disputes be with management."

●

REA Express wants rules for air-surface rates

Petitions were filed with the Interstate Commerce Commission and the Civil Aeronautics Board by REA Express last week asking for guidelines or rules for the establishment of joint rates and through services by air and surface carriers. REA contends that despite Congressional authority since 1938—for joint rates and services by surface and air carriers—no one has even been able to make any significant use of the law because its application has never been explained adequately or interpreted by the ICC or CAB. The petitions pose 14 groups of legal questions and ask the regulatory bodies to institute proceedings through publication in the Federal Register and invitations to the public and the transport industry to air their views.

●

Sen. Williams holds out a 'carrot' for commuter lines

U. S. Sen. Harrison A. Williams, (D-NJ), is proposing a legislative package in which, he says, a carrot-and-stick technique will be used to bridge the gap until capital improvements possible under liberalized provisions of the Mass Transit Act of 1964 can bolster faltering rail commuter operations. The Williams' "carrot" would be a temporary program of Federal subsidies which would pay up to 67% of the out-of-pocket operating loss of a commuter facility while it is qualifying for the Mass Transit Act's capital grants. His "stick" would be an amendment to the ICC Act forbidding the Commission from granting permission to discontinue commuter service until the railroad involved has made a "bonafide" attempt to renovate its operation, using Mass Transit Act funds.

●

NYC refurbishes cars for commuters

New York Central, which has spent $15.6 million on commuter equipment in the last four years, is now investing an additional $1.6 million in the comfort of its suburban riders. NYC is refurbishing 40 lightweight, streamlined cars (of the type used in "Twentieth Century Limited" service) for use between Grand Central Terminal and stations on its upper-Hudson and upper-Harlem divisions. Delivery of the first unit is scheduled for early February and the remaining coaches will be placed in service at the rate of three or four per month. All will be equipped with public address systems, double windows with tinted glass, and improved air-conditioning and heating systems. The 40 coaches—each with a seating capacity of 108—will replace 60 standard-type cars.

MONDAY MORNING REPORT

ICC'S annual report gets new look

Something new in ICC annual reports went to Congress last week. The report, the Commission's seventy-ninth, is shorter than its predecessors, and its format is somewhat different. The Commission's hope is that the changes will increase the report's usefulness. The new format, "in a small way," reflects the Commission's own response to changed conditions in the transport field, the report says, explaining: "As our headquarters reorganization program of 1965 has patterned the Commission's staff structures more closely to our regulatory responsibilities, so does the format of this report more accurately reflect and delineate broad areas of current Commission concerns and policy considerations."

General staff revamp, new locomotive setup

This headquarters reorganization program is given first place in the report. Its most important feature is the consolidation of three formal proceedings bureaus (Operating Rights, Rates and Practices, and Finance) into an Office of Proceedings. The reorganization also consolidated or reshuffled some functions of other Commission bureaus and offices. Another 1965 revamp involved the Commission's locomotive-inspection work. As the report puts it, this "enables us to increase our railroad safety efforts by 15% without any increase in funds or personnel."

Keeping 'em moving may impair safety

Later on, the report says there has been a "sharp rise" in violations of various railroad safety laws in the past five years. This is attributed, in part at least, to the drive for better utilization of equipment. That "leaves less time available for maintenance." While carriers have decreased the number of maintenance and repair facilities and employees engaged in such work, the Commission has intensified its efforts to obtain better compliance, the report adds.

Proposed legislation submitted separately

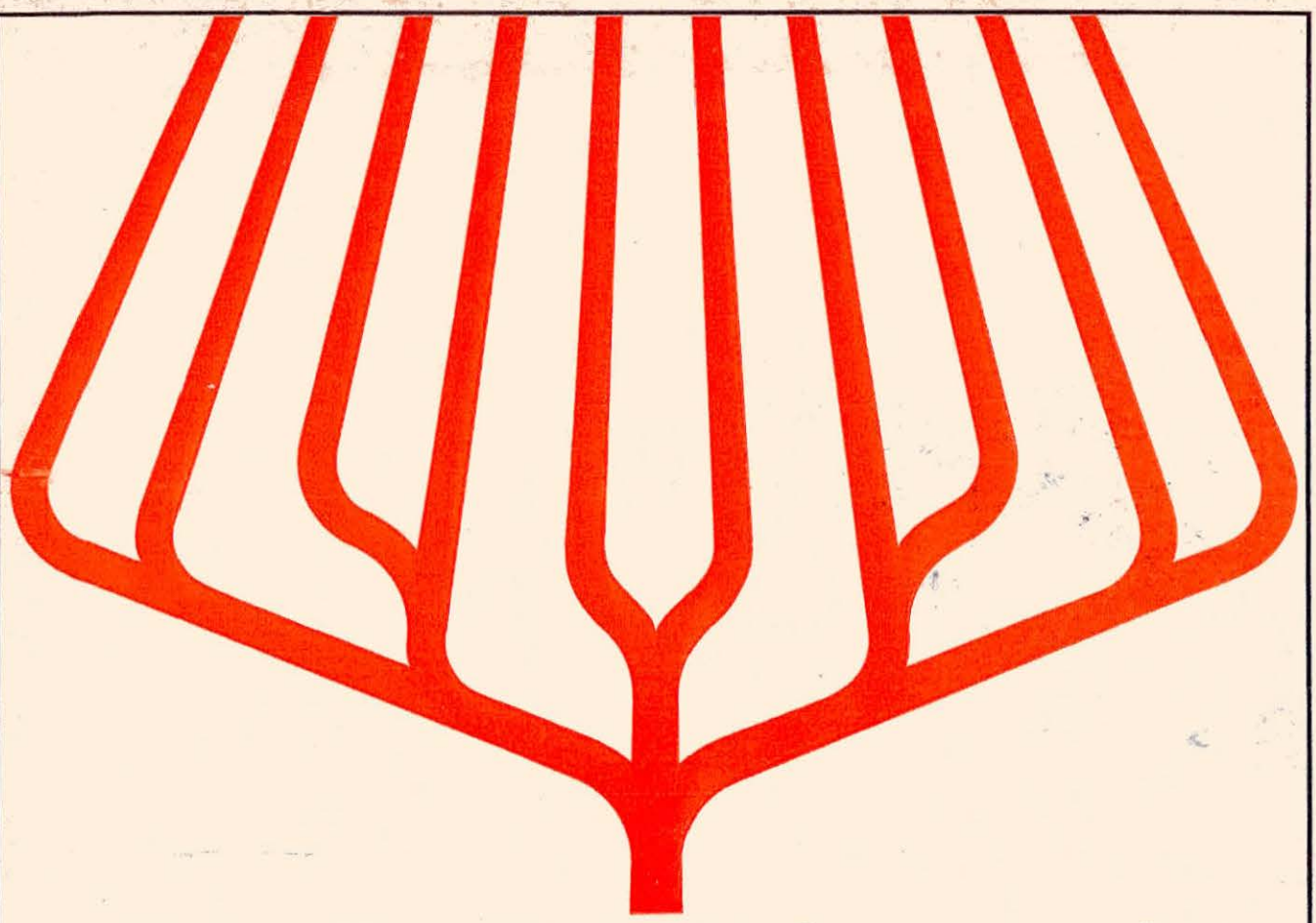
There are no legislative recommendations in the report. This is a change from the Commission's previous practice of including such proposals. Last year's report, for example, made 25 legislative recommendations. The present report announces a new plan of transmitting legislative recommendations to Congress in separate reports. First of these went to Capitol Hill last week. It calls for a tightening of those provisions of the Interstate Commerce Act which authorize bus companies to conduct charter and special-party operations.

Incentive per diem bill still favored

The still-pending legislative recommendations made last year are reproduced in an appendix to the present report. They include the Commission's call for authority to inject incentive factors into per diem rates for rentals of freight cars. The objective is promotion of more buying and more efficient utilization of cars. The railroad industry is divided on the need for this proposed legislation. Differing versions have been passed by the Senate and cleared by the House Committee on Interstate and Foreign Commerce with a recommendation for favorable House action. It is thus well posed for final Congressional action this year.

Service orders don't produce freight cars

As to the outlook for railroad passenger service, the Commission is unable to report that this problem has been solved. At the same time, however, it cites the growing body of federal, regional, state and local programs which are being activated. In that setting, the report ventures this prediction: "If the problem continues to receive this kind of forceful recognition, we believe its solution in the public interest eventually will be realized."



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WEEK AT A GLANCE

Railroads step-up fireman-off drive

The award of Arbitration Board 282 gave railroads the right to eliminate up to 90% of firemen's jobs in freight and yard service—and the carriers are now going after the other 10%. Notices served on chairmen of the Brotherhood of Locomotive Firemen & Enginemen last week would abolish the veto power included in the award—but, the carriers said, they would not attempt to alter the "generous protective benefits" for displaced firemen which were contained in the award.

H. E. Gilbert, president of the BLF&E, charged that the carriers were "maneuvering to be in a position to set off a nationwide transportation crisis by eliminating more firemen's jobs on Mar. 31, the day the present arbitration award expires." Gilbert said his union would continue to press its own notices, served last Nov. 15, which call for restoration of jobs and men and for institution of an apprentice-training program. The Firemen have called for mediation on six major roads—and, Gilbert declared, "the only way a national, regional or local transportation crisis can develop is for management to refuse to meet the brotherhood . . . in good-faith collective bargaining."

. . . as the courts take a hand in the case

Coincidentally, on the day notices went out to the BLF&E, the U. S. Supreme Court ruled that the arbitration law which led to Board 282's award did not nullify state crew-consist laws. By a 7-1 vote, the court reversed a district-court ruling in cases involving the Arkansas crew statute. The impact of the high court's decision, however, was not as great as it might have been—since crew-consist laws have been wiped off the books in a number of states and only a few such provisions remain in effect.

Justice Black, writing the majority opinion, held that "in the face of the clear Congressional history . . . we could not hold that either the act or the arbitration awards made under it supersede the Arkansas state laws." Justice Douglas, the dissenter, argued that the state laws and the federal awards are in conflict and that the intent of Congress to eliminate unneeded firemen should be viewed as an override of the state statutes.

The railroads tally up their 1965 income

Railroad income statements for 1965 are coming out of the accounting departments, and the completed tabulations look good.

Norfolk & Western, for instance, racked up the highest profit in its history—$90,056,000—paying a hefty $9.60 per share of common stock. Also earning a new record net income was the Soo Line, with $5,553,914, and Missouri Pacific, with $26,300,579, among others. A number of other railroads hit profit levels that they hadn't hit in years. Northern Pacific, for example, earned a profit of $28,032,787, the highest since 1918, and the third highest in company history.

The industry's good showing is due in large part to what NYC President Alfred E. Perlman describes as a "quiet revolution." The weapons: new marketing, cost and technical research methods to determine rates, equipment and services that will produce the most profit in all areas of railroad operation.

NET INCOME COMPARISONS

Railroad	1965	1964
Burlington	$16,693,090	$20,355,342
Frisco	11,031,359	7,123,356
Great Northern	36,900,000	28,900,000
Illinois Central	19,195,649	15,727,293
Louisville & Nashville	25,499,135	20,406,228
Missouri Pacific	26,300,579	25,349,517
New York Central	41,518,728	27,046,846
Norfolk & Western	90,056,000	80,089,000
North Western	16,063,760	8,123,116
Pennsylvania	33,896,500	29,132,927
Reading	2,900,000	—5,400,000
Santa Fe	90,952,024	80,722,460
Southern Pacific	97,795,747	95,086,142
Union Pacific	93,755,366	85,463,643

REA's Johnson named IC Industries president

REA Express President William B. Johnson began wearing two new hats early last week. He was elected president and chief executive officer of Illinois Central Industries (parent company of IC) as Wayne A. Johnston (IC Industries president) moved up to chairman of the board. Hours later, REA Express elected Johnson chairman of their board and prepared to name his successor at a Feb. 15 meeting of the REA Express board.

IC's Wayne A. Johnson, in announcing election of his successor, noted that he had "firsthand knowledge" of how impressive a job Johnson had done in "turning a declining company into a growing one."

Snowstorm bill: $20 million for railroads

Eastern railroads had hardly finished digging themselves out of heavy snows deposited on them Jan. 22-23, when they were clobbered by another storm of blizzard proportions last week. The latest storm added upwards of 12 inches of snow in many areas, delaying trains for hours, temporarily wiping out service on a number of rail lines, and damaging lines and equipment. Estimates of the cost of the storms to the railroads are running above $20 million.

At the height of the storm Jan. 30, the B&O was terminating passenger trains at Silver Springs, Md., and the Pennsy was going only as far as Baltimore, due to impassable tracks into Washington.

WATCHING WASHINGTON WITH WALTER TAFT

TAFT

MARGINAL-COST rate making is favored by President Johnson's Council of Economic Advisers. So the President is well advised that the railroad industry's position on this controversial matter is economically sound. That means, of course, that the Council thinks the ICC is wrong.

The Council's advice came in its annual report, which the President sent to Congress Jan. 27 along with his own annual economic message. It was hailed by the AAR as a "timely discussion" of the stabilizing role played by railroad freight rates at this time when the country "is facing new threats of inflation."

THE RAILROADS' POSITION is that they should be permitted to publish competitive rates made on the marginal or incremental-cost basis. Otherwise described, these are rates which exceed out-of-pocket costs in amounts which make them compensatory because they improve net earnings.

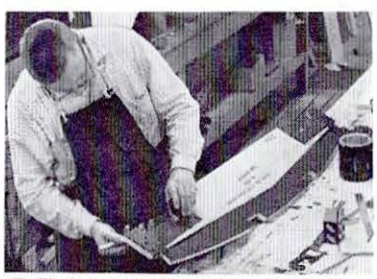
THE ICC'S GENERAL RULE is that fully-distributed cost is the proper identifier of the low-cost carrier in a competitive-rate situation. The rule permits a carrier with higher full costs to go below those costs—but not below full costs of a carrier identified by that test as the low-cost mode.

THE CED REPORT rejects this, calling it an allocation of costs which does not produce rates reflecting maximum economic efficiency. Railroads and pipe lines have relatively high fixed costs, the report notes. It adds that, if such costs are allocated over each traffic unit "on an arbitrary basis," the result is "average costs unrelated to the variable expenses of additional traffic."

THESE AVERAGE COSTS "cannot serve as a rigid basis for rate making," the report continues. Then comes its pitch for the marginal, or out-of-pocket-cost-plus approach. "In order to insure efficiency," it says, "marginal, rather than average, cost should be the principal regulatory criterion in applications for rate reductions."

PRESIDENT JOHNSON did not refer specifically to this discussion in transmitting the Council's report to Congress. He did say, however, that his proposed cabinet-level Department of Transportation would "take leadership in the development of new transportation policies in accord with current realities." Moreover, the President is on record in favor of "heavier reliance on competition in transportation."

DESIGN



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Seattle looks sold on rail transit plan

- **Consulting engineers recommended a $171 million system.**
- **Judging from local reaction, it's just what the doctor ordered.**

The Pacific Northwest, as everybody knows, is booming. In the central Puget Sound region, the population will jump by 80% in the next 20-25 years. But how do you channel the growth to keep it from bursting at the seams? In Seattle, the answer to downtown traffic problems may well be rail transit. De Leuw, Cather & Co., consulting engineers, have come up with a proposal for a $171-million, 20-mile system, to take care of the region's biggest traffic headaches through 1985.

Local reaction has in many ways been favorable to the idea. Civic authorities approved the consultants' findings, are studying enabling legislation, and taking steps toward an application for federal transit-aid funds.

The ground has been prepared for some time. In 1961, the Puget Sound Regional Transportation Study was launched under the aegis of federal, state and local planning agencies. The study area took in urbanized portions of four counties with a total population of 1.5 million at the 1960 census.

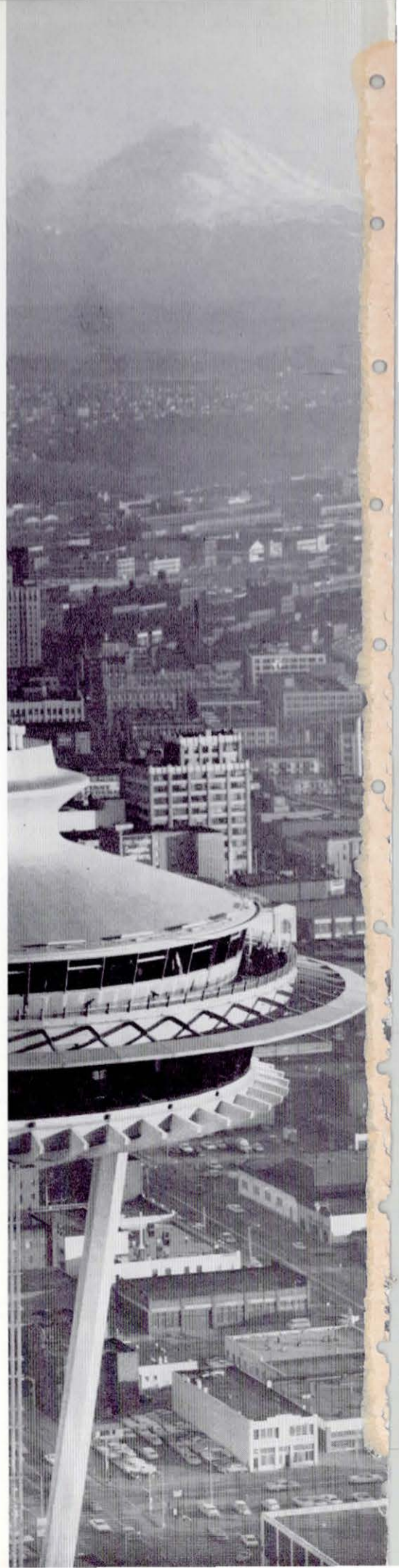
The first step was mainly inventory taking—collection of data on existing traffic patterns and capacities, land use, physical geography, and all the other factors bearing on present and future transportation requirements. By 1964, an area-wide plan was beginning to take shape and local planners were ready to commission an outside consulting firm to help develop the public transit phases of this plan.

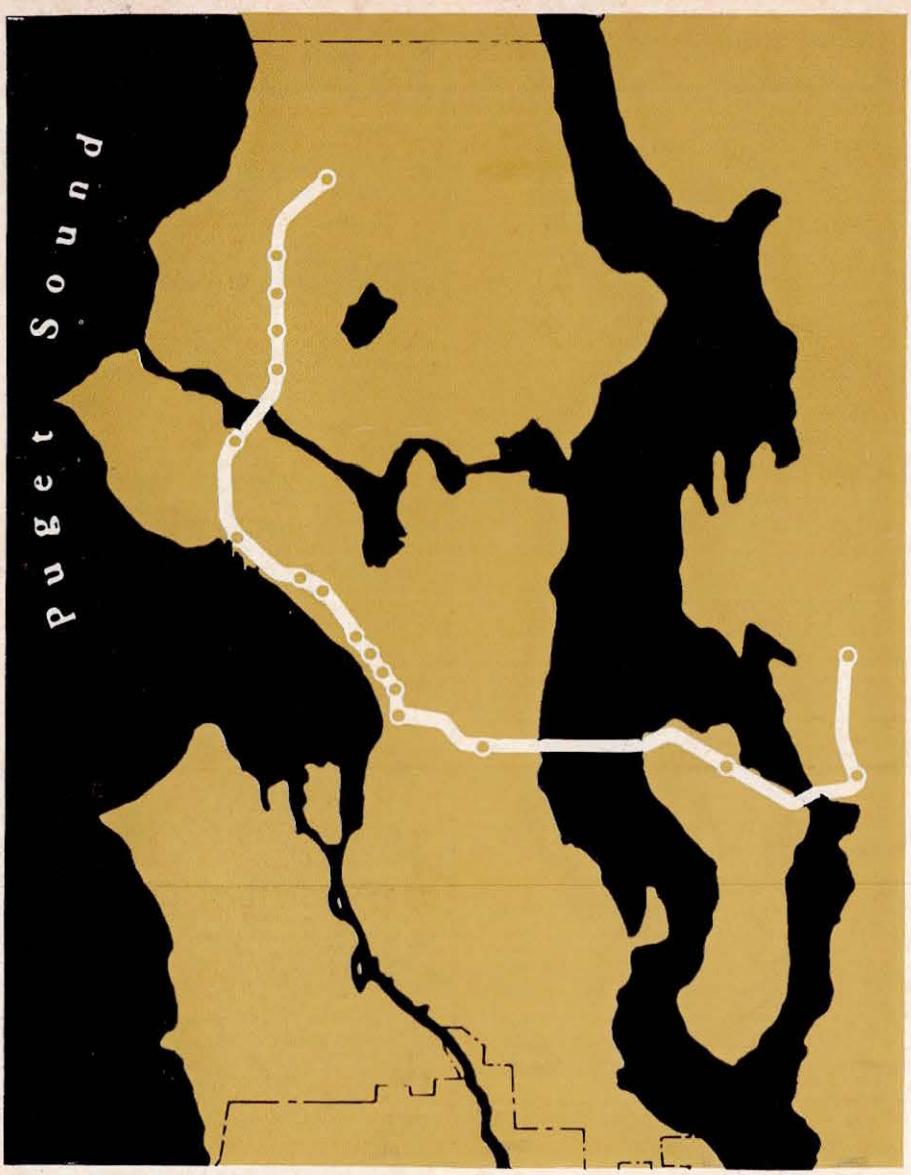
• **The project in brief.** Here are the main features of the De Leuw, Cather proposal:

Construction of a two-track 19.8 mile rail line from northwest Seattle through the downtown core, swerving east across Lake Washington to Bellevue.

Daily passenger capacity would be about 76,000 by 1985.

Eighteen stations along the line, and 160 transit cars required.





WHY TRANSIT ALONG PUGET SOUND? Seattle is big (pop. 800,000) and it's busy (gateway) for trade with Alaska, the Far East). A 20-mile rail transit line would be an important step toward easing crowded downtown traffic lanes.

Trains operating on four-minute headways at peak periods. One-way travel to the core area would be 16 and 17 minutes from the eastern and northwestern terminals of the line, respectively.

As drawn up by the consultants, the plan allows for approximately two-thirds of the line at grade, on structure, or in a freeway median, with the remainder (mainly downtown) underground.

The northwestern and eastern routes would utilize the same downtown distribution system, with trains operating through from the east terminal to the north terminal, and vice versa.

Trains would have speed capacities of up to 80 mph, with an anticipated over-all operating speed of 36 mph including stops. Transit cars would be 70 ft long electric m-us, have a seating capacity of 72, and weigh 56,000 pounds.

At peak periods, six or eight-car trains would be run; off-peak, trains could have two or four cars, and on weekends train length would be set to meet patronage demands, with headways between 10-15 minutes. The system would be in operation between 6:00 a.m. and midnight.

● **Route through the city.** From the northern terminal, the line would move first southwest, then drop underground and swing south, to tunnel under the Lake Washington ship canal. The line would return to the surface within the Northern Pacific-Great Northern right-of-way, cross one avenue on a bridge, and move underground once more, for the trip through the core area in an easterly direction. Five downtown stations with escalators are contemplated.

Beyond this area, the line would continue east, coming to the surface in the median of interstate highway 90, with an elevated station at one point. Still within the median strip, the line would cross Lake Washingon and Mercer Island on a planned high-level bridge; leave the freeway east of the lake and veer north still on the surface to a terminal near Main Street in Bellevue.

Two factors play a big part in the proposal: Utilization of express buses for other main traffic arteries into the downtown area; adequate parking facilities and bus feeder services for the rapid line.

To insure strong utilization of the rail transit system, approximately 10,000 parking spaces would be provided along the line, with short-time loading zones for automobiles delivering passengers to the transit stations.

Within the downtown area, stations would be closely spaced—1,000-2,000 feet apart, and would be within easy walking distance of most of the important downtown destinations.

● **First leg by 1975?** The consultant's recommendation was that the north leg of the line be constructed first. The bulk of the capital expense would be $111 million to bring this into operation by 1975. The remaining $60 million would then be spent to build the east leg and have it in operation by 1985.

The question of financing remains to be settled, but the consultants noted the experience of other cities, where federal state and regional agencies have provided assistance, and the methods of financing range from revenue bond issues to diversion of highway toll revenues to special taxes, as well as straight subsidies. The presumption is that operating costs could be covered by a slight margin out of operating revenues, but that some outside source would have to assume responsibility for the initial capital outlay.

Two other economic factors — one favorable, the other unfavorable — might well act to cancel each other out. On the one hand, cost estimates were based on present-day prices, and these are likely to rise. On the other, many new technological innovations (automatic train operations, automatic fare collection, etc.) could well cut operating expenses considerably below what was projected.

● **Part of a bigger plan.** Looming beyond all of these points is the consultants' conviction that rail transit would play a vital role in a coordinated regional transport plan for Seattle.

The latter has the important advantage of requiring minimum investment, and of being able to take advantage of

state, county and municipal construction that will take place anyway.

Freeways would be utilized for express bus service during peak travel periods. Non-stop runs would be made between residential areas and points downtown.

Two disadvantages, however, were noted when buses are relied on exclusively. "Express buses in mixed traffic on freeways must move with all other vehicles, so that their effectiveness in affording true rapid transit service is seriously impaired during peak periods when facilities become congested."

The second: "with a regional all-bus system, travel to work in downtown Seattle central business district would be heavily dominated by private vehicles. This would, in all probability, result in congested operating conditions on the surface streets and freeway approaches during peak periods."

A third drawback: "It would also necessitate a significant investment in high-valued land for parking purposes." The report goes on, "based on the supply of parking spaces existing today, there would be a deficiency of 27,000 spaces under (the all-bus system) in 1985, virtually all of it in the core of the downtown area. It is unlikely that so many additional parking facilities could be provided in the downtown core. Aside from usurping a large amount of valuable land, the cost estimate on the order of $80 million, would be prohibitive."

The winner: rapid transit

The report concludes, therefore, that "consideration of service; cost, economic and socio-economic benefits to transit users and other travelers; and other tangible and intangible community impacts lead us to the conclusion that there is full justification for the recommended regional transit plan—the coordinated bus and rail rapid transit system for the central Puget Sound region."

- **Transit's vital role.** Why is rail transit so important to the over-all plan? The report gives a detailed list of benefits that a rail system can be presumed to have.

First, safety: "the safety features of rail rapid transit operation must be given serious consideration in view of the excellent safety record reported by all modern rapid transit systems."

Second, air pollution: "The several devices which have been developed to control smog have not proven entirely successful . . . a reduction in the number of automobiles and buses operating within the area would help in alleviating this problem."

Third, economy: "if these commuters were to be served by buses and automobiles only, substantial investment would be required for additional parking and highway facilities . . . the 25-cent one-way fare for travel on the rail line would be only a small fraction of the cost of driving a car and parking it downtown."

Fourth, capacity: "a rail rapid transit line has almost unlimited capacity. It can carry as many as 40,000 passengers per hour on a single track, as compared to about 2,200 persons per hour presently carried by automobile in a single lane of freeway. Thus, rail rapid transit facilities in the recommended plan would afford reserve capacity for many years to come freeways and other highway facilities become congested during peak periods because of their limited capacity."

Fifth, land use: "freeways require a minimum right-of-way of at least 200 feet, and it is generally the practice to take over a complete block for the required right-of-way. Important considerations are the disruption on the homogeneity and continuity of residential areas, the number of properties removed from the tax rolls, and the inconvenience created in relocating established residences or businesses . . . grade-separated rapid transit, on the other hand, retains and encourages more intensive development."

Sixth, preservation of civic vitality: "of major importance to the vigorous development of any metropolitan region is the orderly and efficient concentration of administrative, governmental, commercial and cultural activities in a single central location (which results in) substantial operating economies, convenient personal contacts, and the attraction of many other business activities."

- **Rails—the cheaper way out.** The report also expressed the prediction that if the proposed rail line is not built, a new northwest expressway might be required, which would cost approximately $75 million and remove still more property from the tax rolls.

Finally, the engineers' report cited the experience of Toronto, where construction of rapid transit aided considerably in appreciating land values. "Between 1950 and 1959 assessed valuation in the area and influence of rapid transit has increased by 75%, compared to an average increase of 25% throughout the city."

Beyond 1985? The consultants believe that "rail rapid transit operation in other corridors should be a subject for continuous review . . . the design of the first rail rapid transit line should provide for future extensions to the other corridors and existing railroad right-of-way in these corridors should be protected for future rapid transit extensions." ■

Pittsburgh conference looks at transit

The precedent-setting meeting brought together top transit men for an exchange of ideas.

Transit men are a stubborn breed. Despite snowstorms that closed down airports and turnpikes and slowed trains, a full complement of 1,300 delegates turned up in Pittsburgh last week for the three-day first International Conference on Urban Transportation.

"Neither rain, nor snow, nor sleet—," cracked Leland Hazard, board member of the Port Authority of Allegheny County, in his welcoming speech to the delegates. Officials of the sponsoring group, the Chamber of Commerce of Greater Pittsburgh, were amazed—and delighted—to find that there were about 300 more people than they were counting on in the first place.

The official program was substantial and imposing—but, as is customary at gatherings of this kind, some of the most important work was done in corridors and hotel suites. Presidents of the nation's largest corporations exchanged ideas with governors and mayors. The traffic engineer of Halifax, Nova Scotia (pop. 100,000) listened to the presentations and inspected manufacturers' models as avidly as did George Dement, chairman of the Chicago Transit Authority. There was something for everyone at this precedent-setting meeting—and no one appeared to go away dissatisfied.

- **The subjects were varied.** They heard a variety of viewpoints expresed on matters that hit close to home—over-all regional planning, new technology, governmental relationships, methods of financing.

The kind of thinking that emerged at this conference—"both on the platform and in the smoke filled rooms—" was summed up at the final session by Fletcher L. Byrom, president of the Koppers Company. He listed six guidelines that delegates could take home

'The obvious solution is in a mass transit system'
Mayor A. J. Cervantes, St. Louis

'In Philadelphia we faced up to the fact we must subsidize.'
Mayor J. H. Tate, Philadelphia

with them—"or what the legal profession calls stipulations":

"Stipulation No. 1 is that this problem must be solved. The question now is not whether, but how, and when. . .

"Stipulation No. 2 is that we have the means to solve this problem. We can solve it with the technology available now. . .

"Stipulation No. 3 is that we must solve this problem without taking over more and more urban land to build ever more costly highways to bring and deposit more and more private vehicles into an increasingly congested city. . .

"Stipulation No. 4 is that we will not solve this problem simply by changing the ownership of our mass transportation services or the structure of the body responsible for their operation. . .

"Stipulation No. 5 is that . . . we can't solve 20th Century problems with 19th Century concepts. We must use new concepts and materials, tracks, stations, train control, power units and rolling stock.

"Stipulation No. 6 is that, since this is both a community and a national problem, all appropriate elements of the economy must work together to solve it . . The federal government must participate in this work, but must not dominate it."

Byrom pledged the full cooperation of industry. "American industry has massive resources to draw upon in fighting the battle of urban transit," he said. "It has the ability to approach mass transit on a systems basis. The problem will not be solved in any other way."

Earlier, one of the nation's top labor spokesman — United Steel Workers President I. W. Abel—pledged the help of the labor movement. Abel also identified what may be the most important lasting effect of the Pittsburgh meeting when he said: "This conference can add to the sense of urgency that is needed, if it can help build the sense of commitment that is needed, if it can help generate the sense of urgency that is imperative to the solution of mass transportation, then it will have fulfilled its purpose."

The conference may have accomplished just that. Press representatives from all over the nation were on hand, and what went on in Pittsburgh was making headlines thousands of miles away. They found what is known in the trade as "good copy." And the speakers were, as newspapermen put it, "big enough to quote."

Stuart Saunders, board chairman of the Pennsylvania, put his finger on what everyone was there for: "Most cities as we know them live embedded, for better or worse, in the modern phenomenon of "urban sprawl." The movement of those who can afford it to the suburbs is more than offset by the migration of millions from rural and small town areas into the cities. Economically, this is making many of our larger cities like a doughnut with a hole in the middle and all of the dough around the outside."

"The more this urbanization spreads and intensifies," he said, "the more urgent and vital becomes the need for fast, economical and efficient transportation. People must be able to move about freely within urban areas and between them. Otherwise we drift from inconvenience to congestion and thence to economic and social paralysis."

• **Urgency of the problem.** Gov. William Scranton of Pennsylvania reinforced the theme: "we have come to recognize that the condition of our urban areas is a matter of urgent regional, state-wide and national interest.

"For example, to replace the two commuter railroad systems serving the Philadelphia area with equivalent highway and parking facilities would require at least $1.2 billion in capital, to say nothing of the extreme distress in the destruction of businesses and homes it would cause.

"And just consider this; the Keystone Shortway, approximately 313 miles long from the east to the west border of Pennsylvania, will cost $350 million. In amazing contrast, the Delaware Expressway, 52 miles (one sixth of the shortway mileage) and going through the City of Philadelphia, will also cost $350 million. When you compare figures like this, you see the tremendous need for solving urban transit problems."

Nevertheless, he was able to cite forward steps in a number of places on the state level: Massachusetts has committed $250 million to a program for the Boston area that includes new subway lines, commuter rail subsidies, and some new construction: New York state has just bought the Long Island Rail Road, New Jersey is subsidizing its rail commuter lines.

• **Mayors speak up.** A panel of four leading mayors was to have offered a "Tale of Four Cities," giving the view from city hall. Mayors Samuel Yorty, Los Angeles and Ivan Allen, Atlanta, couldn't attend, but Mayor James H. Tate of Philadelphia and Mayor Alfonso Cervantes of St. Louis were on hand. And the two missing officials were ably represented by Harry Faull, chairman of the Southern California Rapid Transit District, and Robert Sommerville, President of Atlanta Transit.

Sommerville pointed out that a rapid transit authority has just come into being in Atlanta and "the long task of actually raising some $300 million, making plans and finally doing the work—all of this lies ahead."

Sommerville had one suggestion for his fellow transit officials: consider making service free to riders. "You may ask," he said, "how the cost of free transit service would be met. Spread over a city, related to any of the cost totals with which our Chambers of Commerce constantly bombard us, business done, retails sales, downtown real estate values, bank deposits, earnings, in relation to any of these figures the cost of free transit service would be minuscule. It seems to me the prospect is so exciting that merchants might well themselves consider

defraying its cost. Just think of the tens of thousands of movements within the downtown area that free movement of people would encourage, the opportunities to go shopping, the ways in which people coming into the city for one purpose would be encouraged to stay for some others."

According to St. Louis Mayor Cevantes, "there would be no point in improvising patchwork expediencies for our transit needs year by year. The obvious solution is in a mass transit system. The bi-state agency is contemplating a study which would concern itself with the specifics of a rapid transit system. Such a study would cost an estimated $50,000 and is contingent upon securing local funds and a federal grant. It is thought this might be as soon as a year."

• **A California dragon.** SCRTD Chairman Faull, who is also mayor of Pomona, called urban transportation in the greater Los Angeles area a "two-headed dragon," and warned that the second head, mass public transportation, is far from healthy at this point.

"Los Angeles," he said, "will not have the level of public transportation its people need until our marvelous network of freeways can be balanced with an equally marvelous network of rail rapid transit. And that prospect seems brighter now than ever before. At a special budget session of the legislature which will open in just a few days, two rapid transit bills are scheduled to be introduced. One will provide funds to complete the preliminary engineering and work in the community. The other will deal with long range construction financing. We are hopeful that both bills will pass."

Mayor Tate of Philadelphia had solid accomplishments to point to in his own bailiwick, in spite of obvious obstacles, "The leaders of the four surrounding counties are Republican, while I am a Democrat, in southeastern Pennsylvania we are demonstrating that the bi-partisan approach should work and does work.

"I am sure you all know," he went on, "of the annexation phobia that plagues city-suburban relationships. We had to overcome that bugaboo and convince both officials and the public as well that transportation problems could only be solved regionally and that city and suburbs could each benefit from the other.

"In Philadelphia we faced up to the fact that we must subsidize or face the grim picture of the commuter lines wasting away, so we subsidized. This stimulation gave the railroads a new burst of energy. Fares were lowered. With city financing, more and better trains were added and Philadelphia thus became the first American city to reverse the national trend of declining rail ridership.

THE WESTINGHOUSE ELECTRIC CO.'S Skybus proved to be a popular attraction for the Pittsburgh conference delegates.

"On one railroad line alone, ridership has increased 700% on another 250%. Our commuter network today is carrying 4 million additional riders yearly."

The area's regional plan, the mayor said, calls for capital expenditures of $400 million and includes extensions to the Broad Street subway, a downtown link between the Reading, the PRR terminals, and other projects.

As for marketing, he said, "you in the transit business have done very little communicating with your customers to sell them on mass transportation. Your merchandising has been virtually non-existent. Your attempts to communicate have been largely second rate."

• **Marketing transit.** The same theme was taken up by Lewis M. Schneider, assistant professor of business administration at Harvard, at the seminar, "Persuading the Public to Pay for Transit."

What is needed, he said, is aggressive marketing strategy, not simply descriptive statistics, measures of capacity or anything but an investigation of why people are not riding public transit."

Schneider found encouraging signs in Chicago's air-conditioned transit cars, New York's hiring of Raymond Loewy to design a "new look" car, and San Francisco's coming system, "which promises to revolutionize the image of rapid transit by offering a seat to every rider in air-conditioned modern vehicles."

Opinion as to methods of financing was summed up nearly by Lewellyn A. Jennings, Riggs National Bank chairman, Washington, D.C. "In any final analysis, persuading the public to pay for transit is simply a question of work, work and more work to make known the factors at issue. Once the public is reasonably well informed, a majority usually will favor doing that which is necessary to effect correction".

• **Sen. Pell gets award.** General R. K. Mellon, honorary chairman of the conference, presented the first urban transportation award to Sen. Claiborne Pell (D.-R.I.) for his work as driving force behind the high-speed passenger service act, passed by Congress.

Senator Pell reiterated his arguments that the "long-unused potential of rail transportation could be brought back to full and useful service. Railroads are efficient by any measure when compared with today's highway system. An urban transit system operating at very close headways and moderate speeds can carry up to 20 times as many people per hour as a single lane of highway, assuming the usual low level of automobile occupancy. In intercity service, where headway between trains is greater and train seating ca-

pacity less dense, a rail line still can do the job of five highway lanes.

Recalling that he often felt like "a voice in the wilderness" four years ago, when he first advocated high-speed ground transportation, he praised President Johnson's action in spurring the passage of the law that went into effect last September.

● **A bouquet for the Pennsy.** He praised PRR Chairman Saunders for his cooperation and also the Budd Company, "which has brought its great capacities as a carbuilder to bear on the corridor problem"; Gene Schaefer, Director of the WABCO Mass Transit Center, "who has helped so much to keep the government informed of the opinion of the whole railroad supply industry"; Richard Rice, visiting lecturer in the transportation science program at Princeton, who has demonstrated so clearly the possibilities of better service from known technology, and Dr. Robert Nelson, "who is doing an excellent job as director of the high speed ground transportation project in the Commerce Department."

Princeton's Rice followed Senator Pell on the program and took up his cudgels in favor of upgrading and improving the existing rights of way.

Rice poked gentle, professorial fun at "those gentlemen at M.I.T." and their "gadgets" (e.g. the intercity tube).

"What the northeast corridor needs, what this country needs," he asserted, "is a good tubeless train. If America is to be reduced from mass-transport chaos, he asserted, the real heroes are likely to be not the far-out technologists, but the men who made "those magnificent track machines."

Such machines, he said, are "the secret weapons of high-speed ground transportation." To give these "unsung heroes" their due, he flashed the names of their makes on a screen: Jackson, Kershaw, Railway Maintenance Corp., Tamper, Nordberg, Plasser, Matisa, Fairmont, Mannix.

The machines they make, said Rice, can automatically condition up to 2,000 feet of high-speed track a day, and nobody, he pointed out, has yet invented a machine that can straighten out a tunnel."

Rice described the success of Japan's new Tokaido line, and Europe's Trans-europ-Express network fast trains.

President Johnson was unable to make a tentatively scheduled appearance at the conference, but he sent his Deputy Undersecretary of Commerce for Transportation Alan S. Boyd. Boyd reiterated the Administration's emphasis on the expenditure of federal funds as "seed money." And it's already paying off, he said, in increased research and development activity by railroads and private industry. ■

GUS WELTY'S

WELTY

LINES ON LABOR

WHAT PRICE FOR A STRIKE?—When the non-ops struck Florida East Coast, feelings must have run high. There must have been an air of confidence at union headquarters, on the picket lines, in the homes of FEC's non-operating employees. After all, they were doing no more than striking to get what non-ops on other Class I roads had received—and FEC, they must have believed, couldn't possibly hold out. In a day or two or three, everybody would be back to work, and fatter paychecks would be coming along.

But a day or two or three stretched into a year, then two, then three. FEC didn't fold. It kept right on operating, and its revenues and earnings are climbing. As our colleague, John Mitros, reports (RA, Jan. 31, p. 24), there is no longer an air of confidence among the strikers or even at local union headquarters. Picketing—what there is of it—seems to be just for the record. And in many FEC homes, there are new things to consider—like the new jobs which so many "strikers" have obtained.

VICTORY AND DEFEAT—At the very top level, union leaders say they'll still win. But Mitros, just back from his second tour of FEC-land, didn't find a similar optimism in Florida. His report—based on conversations with both management and union people—indicates clearly that the strike, as a test of economic strength, has failed badly. Any hope for victory which lingers on among union members and officers, he found, seems to lie in action by the courts or legislative bodies. (And it's somewhat ironic that the judicial and legislative "interference" so despised by the operating brotherhoods in the work-rules struggle is the same kind of "interference" that remains as the FEC non-ops' last big hope.)

Many lessons could perhaps be learned from what's happened on FEC. And the greatest might simply be that a strike is not something to be undertaken without the coldest, most realistic, most practical assessment of the situation as it is—not as an organization or organizations might like it to be. FEC strikers may or may not have made this kind of assessment. The point is that the FEC story might be a handy bucket of cold water for union leaders to keep around—to pour over the hot-heads who want to hit the bricks at every provocation.

THE 'PEACEFUL WITHDRAWAL'—By all odds, chiefs of major rail labor organizations are not strike-happy men. But much pressure to call a strike can build up from below—and it can build up among men who have a false, even a romantic, idea of what a strike is all about.

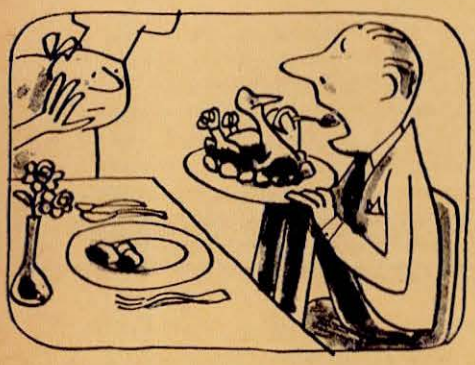
For one thing, it's become a taken-for-granted thing that rail strikes don't last more than a day or so, and that unions usually (if not always) win what they want. FEC would seem to disprove this, and there are other, less-publicized situations which make the same point. Still, the pressure builds up. As one case in point: Late in January, a federal court put the Brotherhood of Railroad Trainmen under retraint to head off a possible strike at the expiration of the award of Arbitration Board 282. And BRT President Charles Luna started getting letters from rank-and-filers—letters urging him to defy the court order. Luna, of course, did no such thing. But—had the grand lodge given even a strong hint of support for this kind of defiance, it's very possible that some BRT group somewhere would have pulled the pin. And what is admittedly a sticky situation could have been turned into a Class A mess which would have done nothing but wreck the union's image and weaken bargaining power.

FOR BETTER UNDERSTANDING—As some see it, union leaders may have become victims of their own propaganda, captives of a membership stirred up by a union press that makes up in militancy what it lacks in balance. Perhaps, however, the day is coming when union publications will let the facts fall where they may, unpleasant though they may be.

Pennsy ads get a good thing going

Traffic on the road's pride and joy—the Broadway Limited—was dropping off until a smart ad campaign changed things.

PENNSYLVANIA RAILROAD



The Broadway Limited between New York and Chicago is serving Oxtail Soup and Roast Duckling a l'Orange. Please don't try to balance it on your knees.

We're not going 600 miles per hour. We're a train.

And being a train, we have a dining car with space for real tables and chairs.

We have time to prepare food properly. And you have time to enjoy it properly.

We've gone all out to make dining a pleasure on the Broadway Limited.

Your Roast Duckling, or Brook Trout Amandine, is prepared by a master chef.

Your Sirloin Steak or Roast Beef Au Jus is cooked to your order.

Wine is served at the proper temperature. And the atmosphere is strictly soft lights and quiet music.

Perhaps you never realized you can get to New York and Chicago without a tranquilizer at 25,000 feet.

But you can.

The Broadway Limited between New York and Chicago

The Pennsylvania has long-believed that it has a good thing going in its plush, all-Pullman "Broadway Limited." But the trouble, apparently, has been that a large part of the traveling public hasn't been aware of this.

In recent years this New York-Chicago service has had spotty business. Often, the 22-car trains made the runs filled to capacity. At other times the crews would outnumber the passengers.

The problem: How to get the non-train-traveling public to realize that the Pennsy did indeed have a good thing going. The way to do it, PRR officers decided, was through advertising. But the ads would have to be a departure from conventional railroad advertising. Something to make people sit up (preferably on trains) and take notice.

PRR's advertising and passenger service men went into a huddle, then went to the road's ad agency, Philadelphia's Al Paul Lefton Company, to map out a five-month ad campaign to promote the "Broadway." Budget for the campaign was set at $80,000—modest in comparison with traditionally astronomical figures bandied about in advertising circles, but substantial in terms of a railroad advertising man's working capital.

- **'It's called a train.'** The agency's copywriters went to work, turned out a series of punchy, off-beat ads that gently tweaked the nose of the competition—the airlines. Sample: "The Broadway Limited to Chicago isn't a Wingjet, a Jumpjet, a Speedjet, or a Jetjet. It's called a train."

"We thought they were terrific," says PRR's Advertising Manager Ralph Timbers, "And the front office reacted to them the same way."

The road then got its campaign rolling, buying space in Time, the New Yorker, the Wall Street Journal, New York Times and other major newspapers in cities served by the "Broadway." In addition, a special ad aimed at women ran in Good Housekeeping.

PENNSYLVANIA RAILROAD

The Broadway Limited between New York and Chicago isn't a Wingjet, a Jumpjet, a Speedjet or a Jetjet. It's called a train.

The last time you took it you probably called it a choo-choo-train.

It doesn't go at the speed of sound. It goes at the speed of a train.

It takes the Broadway Limited a whole night to get to either Chicago or New York. But that's not its only advantage.

It offers the convenience of private rooms for sleeping, washing, working, or contemplation of the great American countryside.

A separate dining car comes complete with real tables, real plates, and a wide variety of fresh foods to choose from.

There are two club cars, the perfect places to win friends and influence people.

And the Broadway Limited always operates in rain, fog, mist, sleet, snow, or anything that makes birds walk.

So it's sometimes the fastest means of transportation available. As well as the pleasantest.

The Broadway Limited between New York and Chicago

The response has been very gratifying to the Pennsy. The unconventional nature of the ads captured the imagination of both the public and the travel editors. The road has been racking up good mileage with its story in print, and extra passenger mileage in the form of new customers on the trains. After months of steady decline in travel on the "Broadway," an upturn in traffic is now evident.

The ads began running in November and there has been heavy travel on the trains since that time, but PRR officers say it is difficult to actually measure the effectiveness of the ads because traffic traditionally increases during the holiday period. In the next few weeks passenger men hope to be able to make a better comparison with traffic at this time last year when the ads were not running.

The PRR's purpose in running the ads is, naturally, to stimulate ticket sales on the train, one of the last two all-Pullman trains on U.S. rails (the other is the Illinois Central's "Panama Limited" from Chicago to New Orleans). But it's also to convince the doubters that the road isn't trying to dump all passenger service.

From reactions so far, the campaign is giving the PRR what it was seeking: a reinforced reputation as a modern, progressive railroad.

● **We get letters.** Former President Harry Truman's son-in-law, New York Times Managing Editor Clifton Daniel, was so taken with the ads that he sent a note down to the City Editor requesting that a story be developed. And the mail to the railroad has been heavy:

From a man in San Francisco: "Those of us who travel by Pullman can't help but feel encouraged to note that there are some railroads around the nation that still believe in the axiom that 'freight traffic follows passenger traffic.' There are many of us who are in no hurry to suffer a coronary attack or an ulcer, and we fully appreciate the wonderful relaxation and good companionship invariably found on a train like the 'Broadway Limited.'"

"Congratulations on your appealing ads," a New York man wrote. "Enclosed is a stamped, addressed envelope in which please forward a timetable for New York-Chicago trains."

In other letters, an airline stewardess who was taking her first train ride expressed delight with "this new mode of travel," and a mid-western railroad officer praised the Pennsy for "doing the entire industry a real service."

Some of the heartiest congratulations come from old-time "Broadway" customers. A Canadian businessman noted: "Your ad for the 'Broadway Limited' in the New York Times did two things for me: First, it reminded me of my first ride on it. Second, it gave me fresh hope that I may enjoy many more trips, if the traveling public responds as it jolly well should."

"We're gratified by the letters we're receiving," says the Pennsy's John B. Dorrance, Jr., general manager, passenger sales. "We're still a long way from capacity business, but we're pleased by the progress so far."

● **Those little extras count.** Passengers on the "Broadway" are pampered with refinements like complimentary sherry with dinner, a carnation on every dinner table, mints, cigarettes and a large red apple after dinner. They're served free canapes in the lounge car, and in the morning New York or Chicago papers are delivered to their rooms.

The ads hit hard at underscoring the advantages of rail travel, pointing out that passengers can travel in private rooms with beds, couches, chairs—even their own bathrooms. They can eat their meals at tables with table cloths on them, with real tableware, full-size water glasses, and have food served right from the kitchen. Passengers can relax in the club car, take a nap, walk around.

One of the prime selling points of a train is its ability to operate in all types of weather. This advantage became especially obvious in Christmas 1964 when New York area airports were closed down by poor weather and there was a wild rush for reservations on the "Broadway" by stranded airline passengers. The PRR feels it has a better than even chance of re-capturing a good part of the traffic now going by air between New York and Chicago. The ad campaign is slanted this way.

"This is an experiment," says PRR Public Relations Director Bill Lashley, "to see if we can revive patronage on this train and compete successfully against jets for intermediate distance travel."

The road has done well by ads before. PRR's current venture in travel advertising is based on some good experiences over the past two years. Aggressive promotion of its special New York World's Fair trains in 1964-65 resulted in a paradox. The railroad ended up with $8 million in extra passenger revenues. The Fair itself ended up in the red.

● **Beating the bushes.** Since people who ride the "Broadway" are impressed with the Pennsy's service, PRR passenger men are encouraging them to pass the word. Post cards featuring the ads are available on the Broadway so passengers can send one off to friends In addition, the railroad mailed some 50,000 pieces of promotion material telling of the special service.

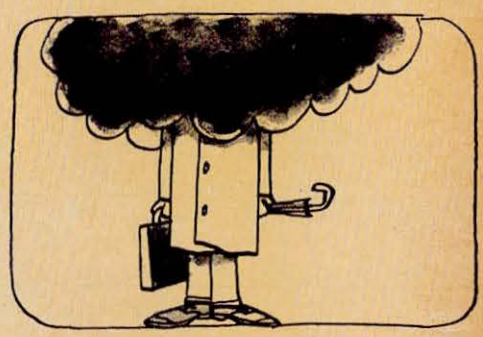
The booklet's cover reads: "Who says railroad advertising has to be dull? Obviously, not the Pennsy." And attached is a printed note saying that in case anyone missed the ads, here they are.

"Traditionally railroad advertising has been staid and sedate," the message continues. But with "this new series of ads for the Broadway Limited, the Pennsy takes off on a brand new track.

"We hope you'll enjoy it. Even more, we hope you'll try the Broadway next time you travel."

And from all indications, a lot of people will. ■

PENNSYLVANIA RAILROAD



On cloudy days, don't you sometimes wistfully remember the Broadway Limited?

It went out weather permitting or no. In fact it was sort of fun to sit inside, warm and snug, and watch the elements rage outside.

All the while travelling at a dignified 60 mph. It took all night to get to New York or Chicago.

The passengers travelled in private rooms, where they could sleep, wash, work, relax, stretch out and enjoy many of the comforts that are virtually unknown today.

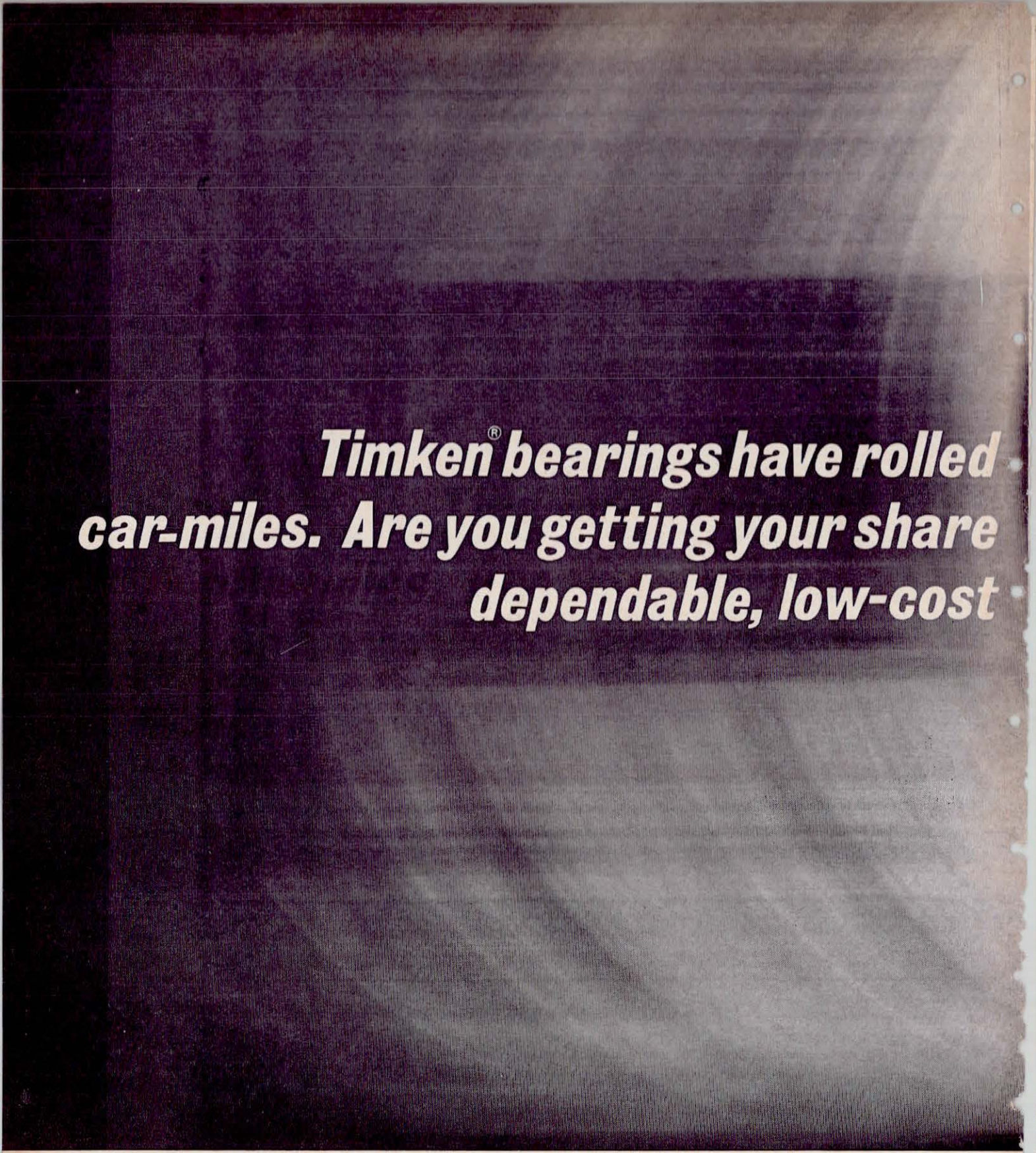
There were two club cars where men could talk together and make business deals. (One of the benefits of taking a little extra time to get to your destination.)

There was a dining car with a menu just like a restaurant. And real tables and plates.

If you're ever in the neighborhood of the station, you can still see what a crack express train looked like.

It still looks that way. And you can take it to New York or Chicago.

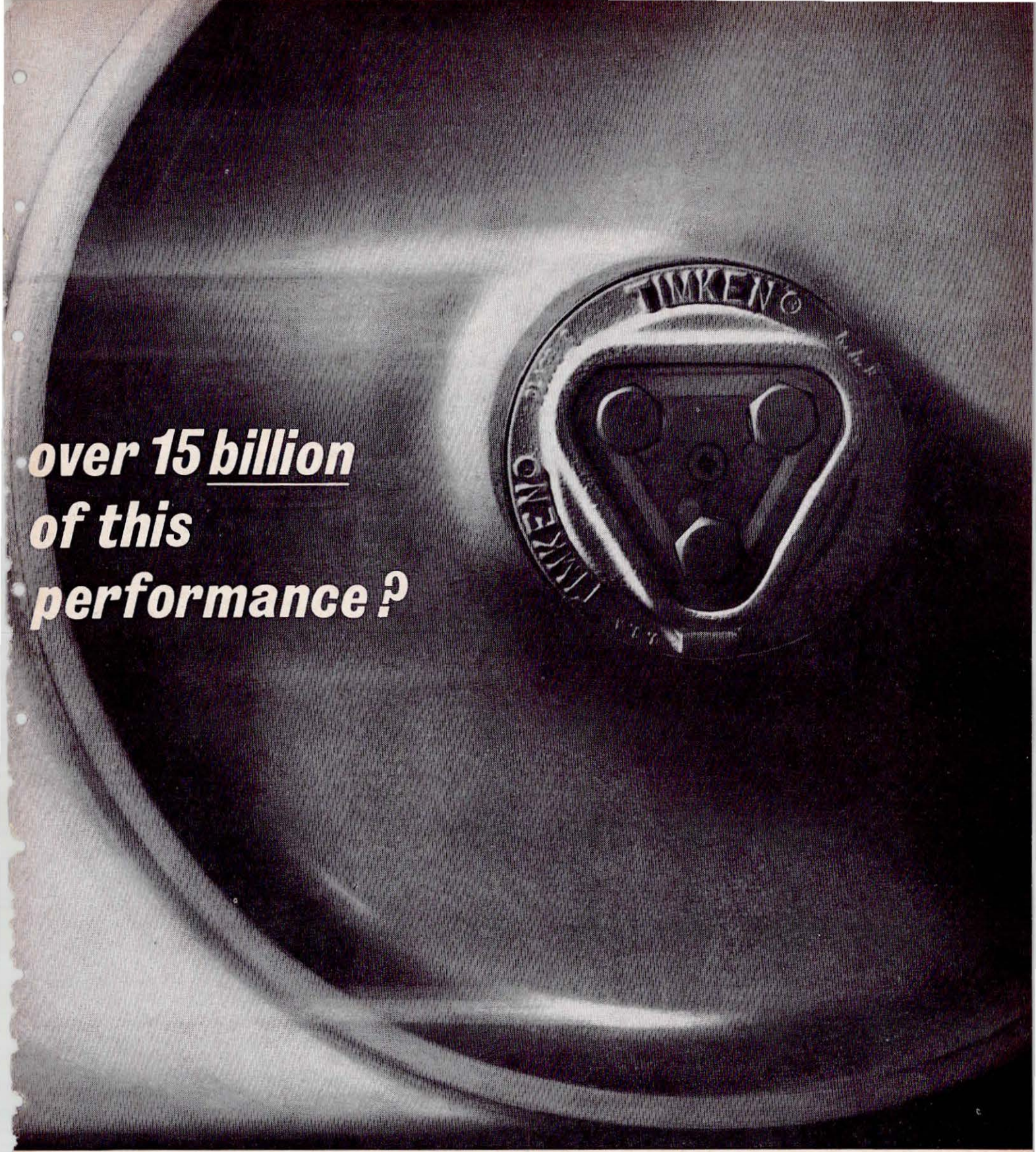
The Broadway Limited between New York and Chicago.



Timken® bearings have rolled car-miles. Are you getting your share dependable, low-cost

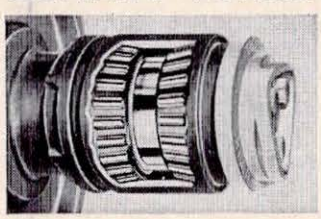
Fifteen billion *anything* is big. Timken® "AP" tapered roller bearings have rolled these car-miles *in actual service* on every major railroad in the U.S. and Canada. These are the miles that count—the hard and sweaty miles, after the clinical testing reports are in.

If you keep performance records, you can see for yourself. Timken "AP" bearings give you more life and more mileage with less maintenance. They're a good investment for low-mileage cars, too—especially if you have to transfer a low-mileage car to a long-haul assignment.



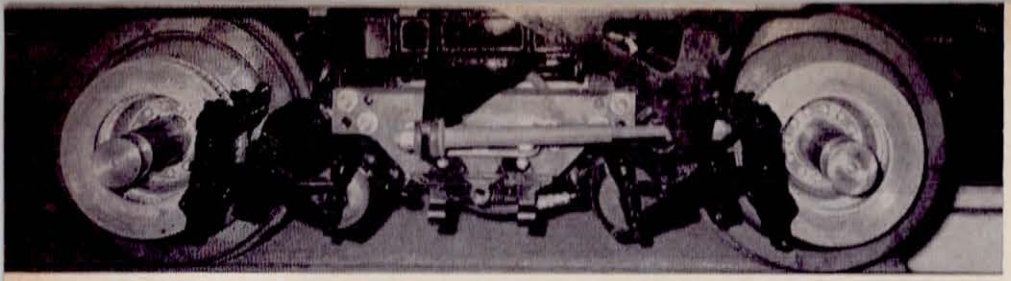
If you're not getting your share of this astronomical track record, you're hereby invited. Why not talk to your Timken bearing sales engineer soon? The Timken Roller Bearing Company, Canton, Ohio. Makers of tapered roller bearings, fine alloy steel and removable rock bits.

QUALITY TURNS ON HEAVY DUTY



TIMKEN®
TAPERED ROLLER
BEARINGS

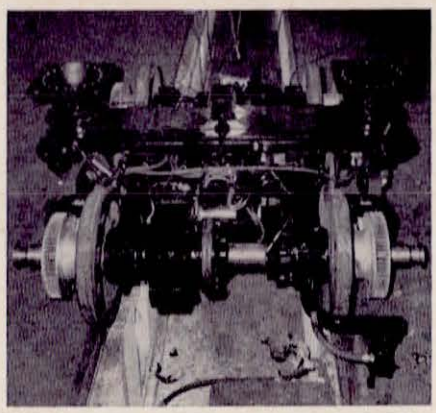
Circle 6 on reader service card



BMT AND IND LINES will be testing ground for Pioneer III truck. Unsprung power pick-up will be installed on the tubes which also support the disc brake units.

NYCTA tests the Pioneer truck

Budd-designed running gear is applied to four cars; the disc brake will also be appraised.



HIGH AND WIDE SPRING SPACING, a feature of truck, will be checked.

With virtually 100% equipment reliability essential in its movement of well over four million riders daily, the New York City Transit Authority has deviated only infrequently from service-proved standards. One of the most basic components, proved by hundreds of millions of miles of trouble-free operation, is the cast-steel-frame, equalized motor truck used under practically all 4,600 post-World War II cars.

The last four of 600 stainless-steel NYCTA cars built by Budd over the past two years (RA, Aug. 3/10, 1964, p. 16) have, however, just been equipped with a new type truck. It is a refined version of Budd's Pioneer III truck, which was introduced a decade ago. Several years ago, in its only other departure from standard, NYCTA had four cars sets of General Steel Industries General-70 trucks installed under IRT cars.

● **Transit-service data.** While costs and performance of the Pioneer III truck have been demonstrated in many miles of mainline railroad operation, it is expected that additional valuable data will be developed in the course of tests under the NYCTA Class R-32 cars. The fabricated, welded Pioneer III design, exclusive of traction motors and gears, weighs 20,210 pounds per car set (two trucks), a saving of almost 9,000 pounds per car, or 54 tons on a 12-car train.

The per-car weight saving in the trucks is comparable with that achieved by using stainless steel in the carbodies of the R-32 cars rather than the low-alloy, high-tensile steel used in their BMT-IND, line predecessors. The Transit Authority's own power department has estimated that, in the 35-year life of a subway car, a reduction in weight of 1,000 pounds saves at least $2,000 in power costs at present rates.

The basic design of the Pioneer III truck has not remained static over the past ten years; detailed improvements have produced weight and cost reductions. The truck is essentially a weldment. On the NYCTA cars it incorporates a steel-coil spring suspension system in place of the air suspension used previously.

● **Simplified load path.** Simplicity of design, new materials and simplification of load paths from carbody to wheels eliminate several major components used on standard New York City Transit trucks. The conventional NYCTA truck, including traction motors and gears, constitutes approximately 55% of the total light weight of an R-32 car. The Budd Pioneer III truck accounts for approximately 47%.

The principal parts of the Pioneer III truck are the two welded side frames, a welded truck bolster, and two nests of triple-coil steel springs. Parts, such as equalizer beams, swing hangers, journal-box housings with wear plates, pedestals with wear liners and bolster-height adjuster, have been eliminated. Metallic wearing surfaces are eliminated and moving parts are isolated by rubber bushings, brake lining materials and wear-resistant plastics.

The two side-frame members of each truck, also functioning as equalizers, are oval tubular in cross-section, an assembly of two alloy-steel stampings welded together. The ends of each side frame house the inside journal bearings. Integral with each side frame is an arc-welded transom structure which includes a half bearing. This half bearing transmits lateral and longitudinal forces between the truck side frames and truck bolster.

● **Independent movement.** The two side frames, because they are not attached to each other, are able to move independently. Brackets welded to the transom support the traction motors. The truck bolster is also a welded tubular-steel structure designed to support the carbody by means of two nests of triple-coil springs at its ends. The wide and high spacing of the coil springs results in what Budd calls the optimum combination of roll stability and vertical and lateral spring flexibility.

The bolster is arranged to permit lateral motion by distortion of the springs, but hydraulic shock absorbers control, and bumpers limit, this action. Shock absorbers control vertical as well as lateral motion. The bolster is prevented from moving longitudinally and from swiveling by radial rods between the ends of the bolster and carbody. The center bearing transmits only horizontal loads.

● **Traction equipment.** Each truck is driven by two Westinghouse Electric 100-hp 1455 traction motors arranged for close coupling to gear units. The motors are supported at one end by the gear housing and at the other end by a resilient mounting.

The 32-inch diameter multi-wear wheels with braking disc mounted on the outboard side of the hub are applied to tubular axles arranged for inside journal bearings. The ends of the axle are arranged for use as a tie-down in the Standard wheel-truing machine. Journal bearings are 5-11/16-inch diameter, SKF type.

● **Disc-brake test.** Disc brakes are used rather than the clasp brakes of conventional NYCTA trucks. Disc brakes on the Pioneer III truck are unit type, four per truck. The outboard-mounted 21-inch brake disc is pinched by a pair of composition shoes actuated by an air cylinder.

Budd predicts a 5-to-1 improvement in brake shoe life. Simplified and more accessible disc-brake units should cut maintenance costs. Uniform torque through the entire speed range, says Budd, will produce smooth, quiet stops.

ON THE NEXT TWO PAGES

Railroaders appreciate the basic logic of trains. Most members of the public do not—and it is for them that the fable on the next two pages is intended. For thoughts on using it as a mailer or bulletin board poster, see page 42.

"If we didn't have trains, they would have to be invented"

How Bob Smart Invented the Train

A FABLE

Kepunkata-poop, kerpunkata-poop-poop-*bang*. "Nuts," said Bob Smart as he coasted off the turnpike, got out and started tieing his handkerchief to the aerial.

A blue Buick pulled off just ahead. Out climbed Harry Hart, a neighbor. He opened the trunk, pulled out a rope. "How about a tow home, Lucky?" said Harry.

"We'll take turns pulling each other"

That night Bob lay awake to all hours. "What luxury," he thought. "I hardly touched the steering wheel. Harry did the work." The mental gears clattered and clashed.

Next day Bob passed a pair of close-coupled used cars heading south, noted the special bumper hitch. The gears meshed. "Eureka," he cried.

That afternoon, Bob phoned Harry. "I know you'll think I'm out of my mind," he said, "but how about me towing *you* home tonight? Eh? Fine! Confidentially, I think I may be on to something."

"Well, how was it Harry?" said Bob as he removed the hitch that night.

"You can do it every day from now on," said Harry, snapping his brief case shut. "I got my homework done. How about a set of tennis after supper?"

"We'll take turns pulling each other," said Bob. "Think of all the gasoline and bother we'll save. Actually, that bearcat engine of mine could pull *two* cars."

Bob stared at Harry. Harry stared at Bob. "Let's have a drink," Bob said.

"I call it a 'train'," said Bob a few weeks later as he drew up at the Patent Office, pulling three cars behind him. "You know—like a 'train of thought.' Don't know why someone didn't think of it before. Only one driver has to steer and step on the brakes. Half the guys in town want to join the train. We gotta get organized."

At the high school auditorium the following night, Bob rapped for attention. "Ladies and gentlemen," he said, "we haven't scratched the surface of this thing yet. For instance. . . . . Why should one

"He says they're calling it a train—like a 'train of thought' "

big powerful car pull two or three other big powerful cars? It's ridiculous. What we're going to pull is some of those lightweight foreign cars. (Applause.) We'll get to town faster and easier and we'll save a lot more money." (Long applause.)

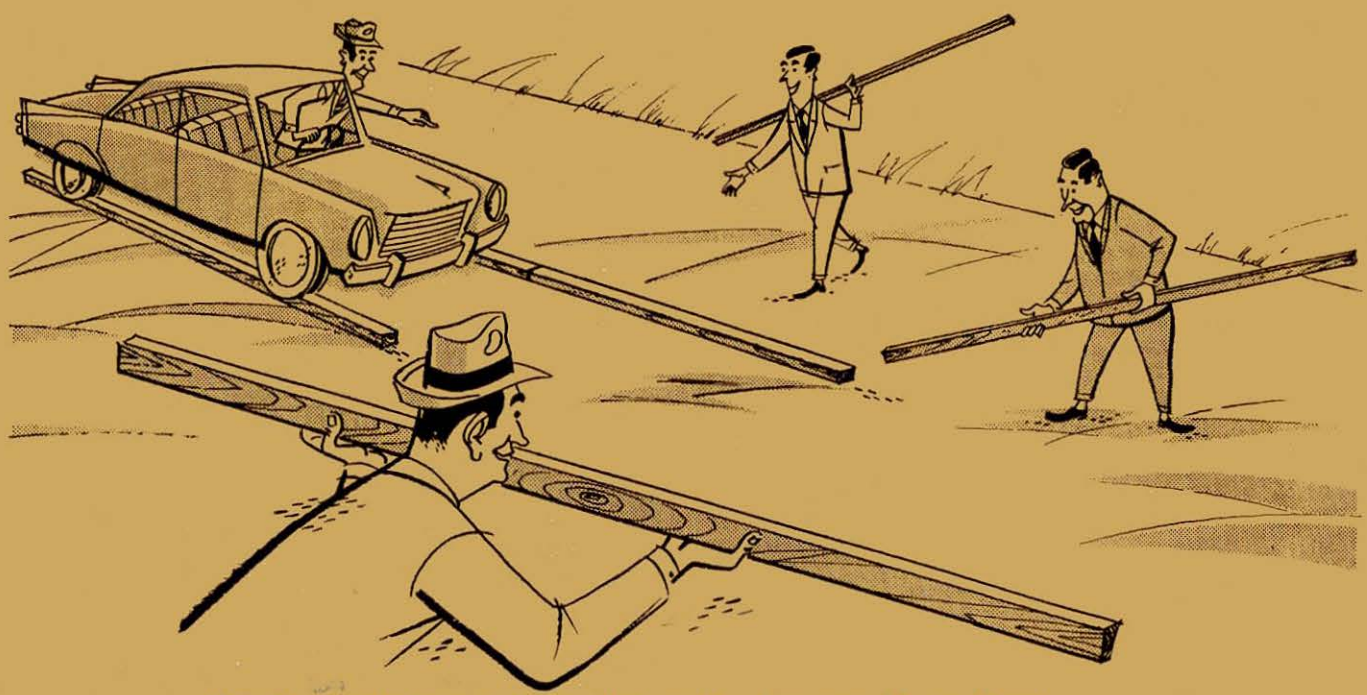
It was just as Bob said. But still he wasn't satisfied. "Why should anyone have to steer?" he thought. The gears were grinding dangerously. Bob went to the medicine chest for aspirin.

"How about deep ruts in the pavement to guide the wheels?"

"They'd fill up with water and freeze," replied Reason.

Bob was honored by a big dinner in Washington. Mayor after mayor praised Bob to the skies for saving his city. "Our parks were turning into parking lots, our biggest buildings were garages, and our traffic was fast becoming motionless," was what they all said.

"I just can't see why nobody thought of the train and the rail-road before," was Bobs' modest reply. "Its so *logical*. You don't need all those drivers, you don't need all those engines. You take up so little room—a rail-road is so narrow. And nothing, but nothing, moves along so easy as a steel wheel rolling on a steel rail. Think of all the savings!



"Lay the two-by-fours out—parallel, so the rims can ride on them"

"Inverted ruts—that's the answer!" Bob whooped and rushed to the phone.

"Harry, call all the fellows and tell each one to pick up a two-by-four at the lumber yard and meet me right away at the school ground."

By the time everyone arrived, Bob had the tires off the wheels of his car.

"O.K., fellows, start right in front of the wheels and lay the two-by-fours out—parallel, so the rims can ride on 'em."

"Look, no hands," cried Bob as he rode along the two-by-fours, arms out the front window.

A cheer went up. "We'll run two-by-fours all the way into the city—and then no one will have to steer. We'll call it a 'rail-road.'"

Time passed and Bob's idea swept the nation. And the mental gears kept slipping into place. Steel rails replaced wood, engines and steering wheels were left out of the towed cars, all the brakes were hooked up into one system, an impact coupling replaced the bumper hitch.

"And we haven't seen the half of it yet. We can build special cars to haul coal, lumber, steel, fruit, vegetables—even new automobiles out of Detroit. Why, I predict that the freight train will become even more important than the passenger train."

There was a buzzing at the tables. "A freight train?" Eyebrows lifted, shoulders shrugged.

"Have I gone too far?" wondered Bob.

Then he remembered what Winston Churchill said when asked how he ended a speech.

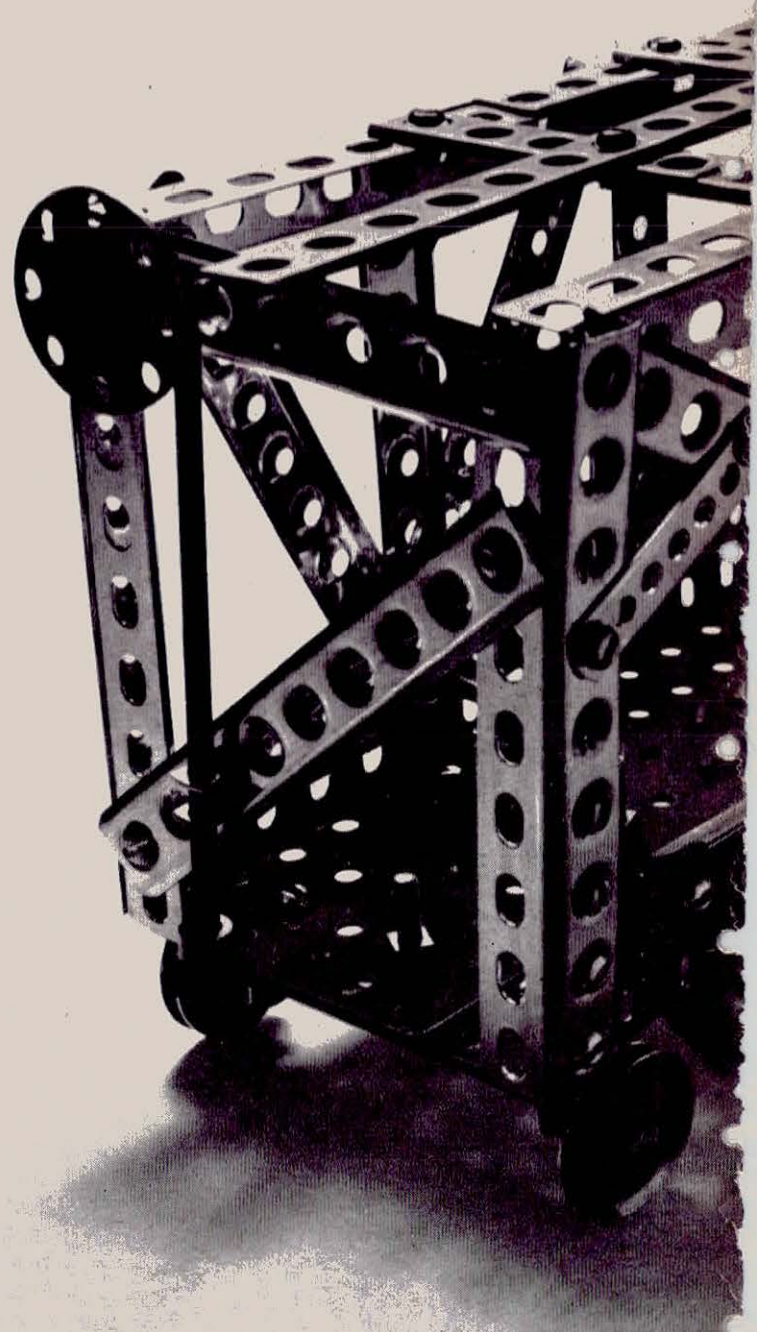
"When it's time and I come to a group of words containing both a subject and a predicate, I sit down," replied Churchill.

Bob sat down.

Recovering, his listeners rose to give him a standing ovation. They were five hundred minds with but a single thought: "Why didn't someone think of a train and a rail-road before?"

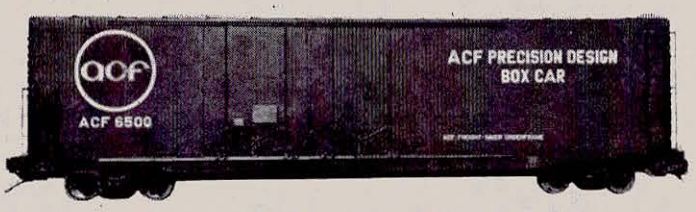
Moral: If the train had come along *after* the car, truck and plane, it would have been hailed as a great step ahead. ***—George Dusenbury***

Circle 7 on reader service card ▶



Why toy with needless deadweight in your boxcars?

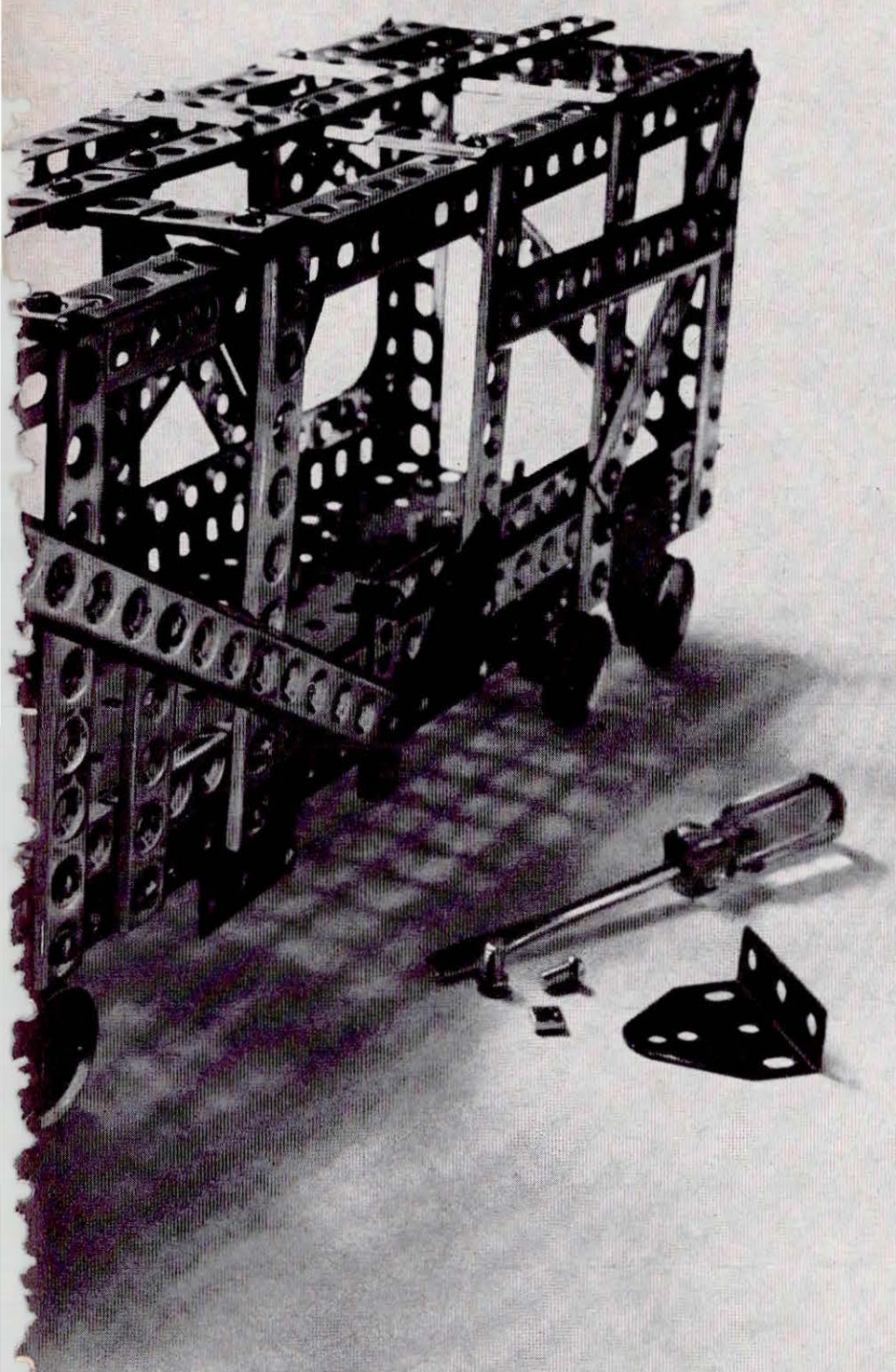
(ACF Precision Design saves up to 3 tons, puts the strength where you need it)



Patching on pieces here and there is not the most efficient way to make your boxcars stronger. (Even in a toy it adds a lot of needless weight.)

Which is why ACF developed Precision Design™ Boxcars. Through scientific use of 8 key structural components, you eliminate up to 3 tons deadweight. And get boxcars with strength where you need it for longer service life. (Lower maintenance as well.)

ACF designed and tested standard sliding and fixed center sills, bolsters, crossbearers, stringers, side sills



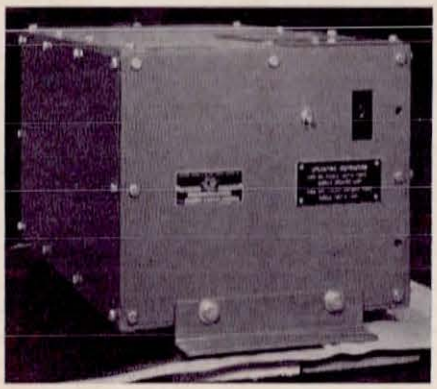
and door posts. These vary in size, number and material grade according to the car you want.

Flexibility? Take your choice of 50-ft. or 60-ft. boxcars. Floor loads from 12,000 to 60,000 lbs. Interior equipment. Cushioning devices. And door openings from 54 options.

Over 10,000 ACF Precision Design Boxcars are now giving tiptop performance. For details write American Car & Foundry Division, ACF Industries, Incorporated, St. Charles, Missouri 63301, or our sales offices in Chicago, Philadelphia, St. Louis, San Francisco, Washington, D.C.

acf **ACF INDUSTRIES**

NEW **PRODUCTS** REPORT

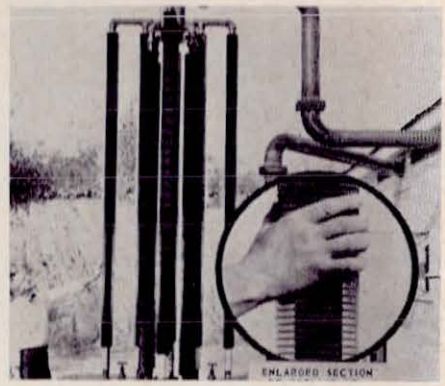


Inverter (RA-1)

The Model No. D32-115 inverter, according to manufacturer, is designed to meet railroad needs for mechanical strength, minimum sizes, and maximum input parameter variations. The inverter consists of On-Off circuit breaker, SCR switching network, voltage regulating transformer, and SCR firing circuit, and will change 16-cell, lead-acid battery power to 115 volts, a-c, 1-phase, 60-cycle output. *Ther Electric & Machine Works.*

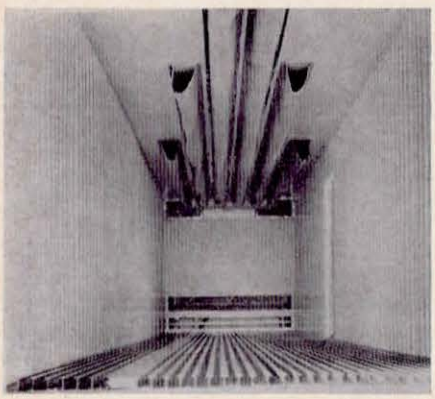
Hydraulic Boom Crane (RA-2)

The PAR-10 crane with "aircraft-type" controls is designed for truck or stationary mounting. It has a reach of 28 ft above ground and 3½ ft below ground when mounted on a conventional truck, and will rotate full circle continuously without reversing. Two pivots combined with rotation provide complete coverage within operating volume. Capacity is 5,000 lb at 9.5-ft radius; 2,500 lb at 18.0-ft radius. *Programmed & Remote Systems Corp.*



After-Coolers (RA-3)

Air-to-air after-coolers, which are assemblies of vertical 10-ft-long, 2-in.-diameter pipe branches, with 4¼-in. radiation fins closely spaced throughout each pipe length, are said to rapidly cool compressed air just after compression. The six ASME-coded assemblies have unit ratings for scfm and compressor horsepower (at 100 psi) from 150 scfm and 30 hp, up to 900 scfm and 200 hp. Maximum working pressure is 125 psi. *Van Products Co.*



Lining Panels (RA-4)

Each vertical rib in the fiber-glass reinforced polyester panels of this 40-ft Fruit Growers Express trailer slants in from a full convex rib at one end to an equivalent concave groove at the other. Direction of slant alternates from rib to rib, providing a lateral wave effect. The design is said to improve air flow and permits the use of thinner foamed-in-place polyurethane foam insulation. Panels are produced in metal die molds. *Molded Fiber Glass Body Co.*

Microwave Tower (RA-5)

New microwave towers, type Q, offer maximum versatility by allowing multiple parabolic antenna mounting in almost any configuration. Material is hot-dip galvanized after fabrication. Designs are in accordance with EIA specification RS-222, and have adequate rigidity for 13 gc applications. Eight models range in height from 15 ft to 30 ft. Pipe mounts are available for corner, side or overhanging installations of antennas. *Microflect Co. Inc.*

RAILWAY AGE
WEEKLY

30 Church Street, N.Y., N.Y. 10007 READERS' SERVICE (Att. George Johnson)

PLEASE SEND ADDITIONAL INFORMATION ABOUT PRODUCTS IN ADVERTISEMENTS NUMBERED: 1 2 3 4 5 6 7 8 9 10 11 12 13 14

PLEASE SEND INFORMATION ABOUT PRODUCTS DESCRIBED ON PAGE 30 MARKED RA-1 RA-2 RA-3 RA-4 RA-5

NAME ..... TITLE.....

COMPANY .....

ADDRESS .....

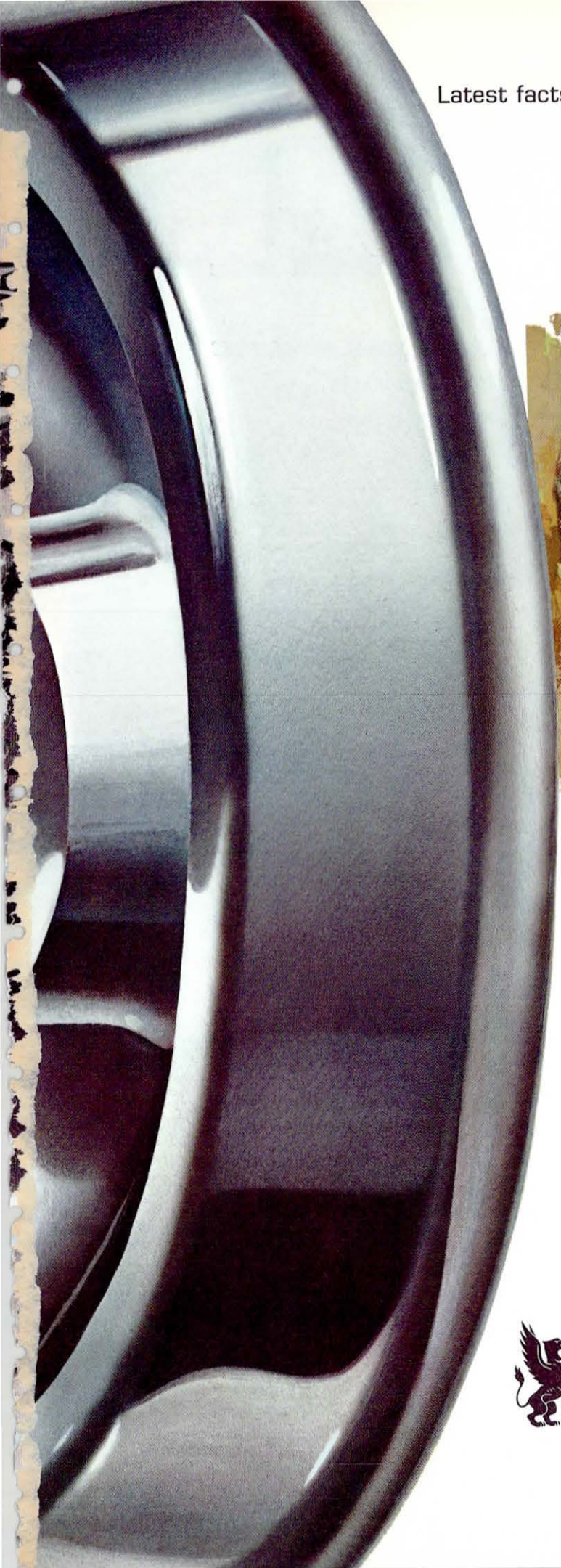
CITY ..... ZONE ..... STATE .....

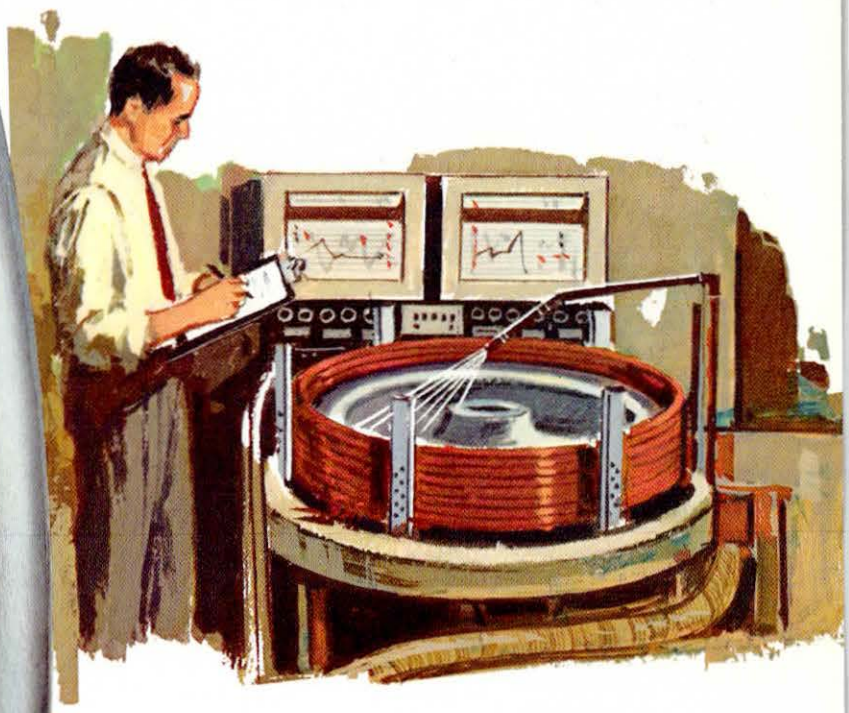
2/7/66

☐ **Please send information about subscribing to Railway Age**

Circle 8 on reader service card ▶

Latest facts about the strongest wheel on rails:





DOES A PARABOLIC PLATE MAKE A WHEEL STRONGER?

Yes, indeed! Griffin proved this years ago—and railroad shop records have proved it ever since. Only Griffin® Wheels can make this claim.

Parabolic design lowers peak stresses and distributes them *throughout* the plate.

First to be computer tested, Griffin Wheels are researched and designed to resist thermal cracking.

This is a huge step forward in safety and strength. Yet Griffin alone offers it. Why? Because no one else *can* offer this unique benefit.

It is just another reason why cars roll longer, safer when you specify Griffin Cast Steel Wheels. Want more information? Call your Griffin representative.

GRIFFIN® WHEEL COMPANY

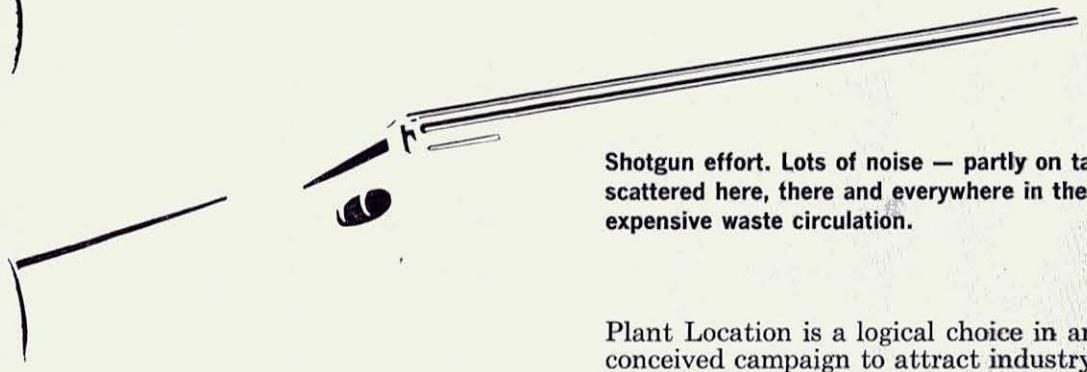
In Canada: Griffin Steel Foundries Ltd.

ONE OF THE Amsted INDUSTRIES

Which approach to INDUSTRIAL SITE SEEKERS?

- ☐ PLANT LOCATION
- ☐ NATIONAL AND REGIONAL NEWSPAPERS
- ☐ GENERAL BUSINESS MEDIA
- ☐ NEWS WEEKLIES

Rifle-like accuracy, limited to the top echelons of industry — the decision makers. The economical, thoroughly proved Plant Location way.



Shotgun effort. Lots of noise — partly on target but scattered here, there and everywhere in the wilds of expensive waste circulation.

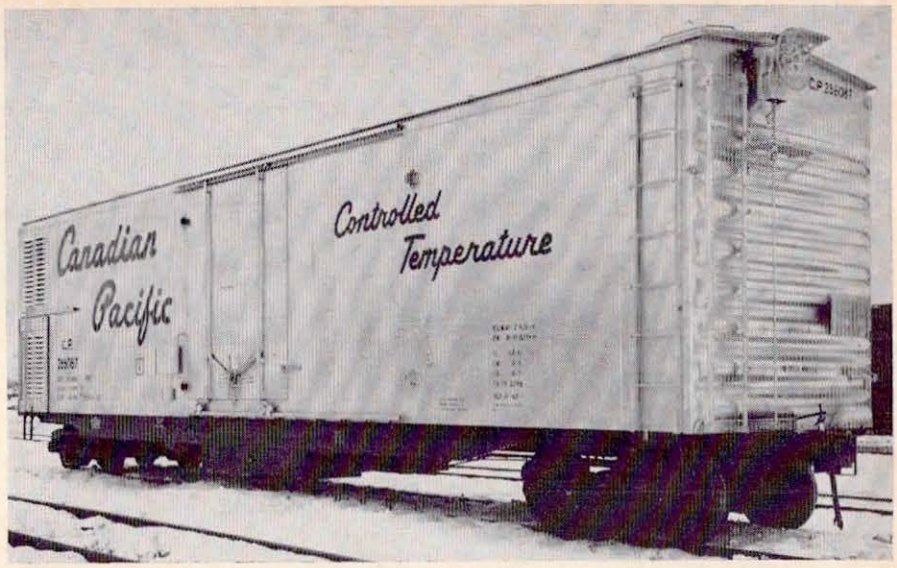
Plant Location is a logical choice in any well-conceived campaign to attract industry *on the move* to your railroad acreage. The primary source book used by 4 out of 5 industrial site seekers, this book goes straight to the heart of your market and works for you all year long. It is by far your most economical investment in the industrial development field.

Many Class I roads use PL year after year. Your Plant Location representative will be glad to explain why the up-coming 1966 edition belongs at the top of your list.

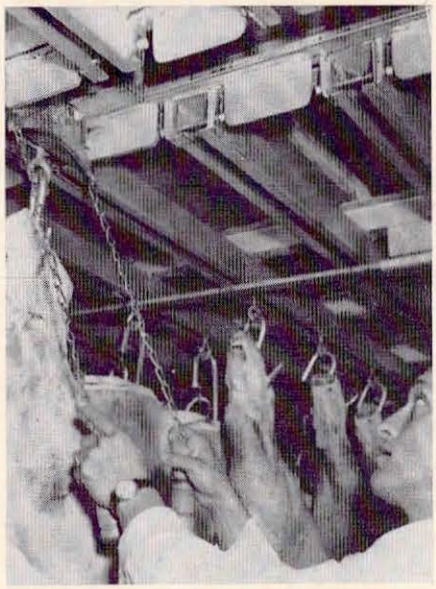
30 CHURCH ST., NEW YORK, N. Y. 10007

Reefers for CP are versatile

Extra height enables CP to haul more meat; market study showed need for this feature in cars.



ON CANADIAN SCENE, mechanical refrigerator cars of this type are becoming more and more common with 150 CP and 100 CN units now operating. Hawker Siddeley also built three cars for on-line service on ore railroads.



MONORAIL TRANSFER SYSTEM, used in 135 of CP's new reefers, was built and tested under load conditions in an ice refrigerator car for a year. Fifteen of the new cars have no meat rails—only bulkheads for frozen foods and perishables.

High-capacity mechanical refrigerator cars, versatile enough to carry frozen foods, perishables or fresh-dressed meats, have gone into service on the Canadian Pacific. The $5-million order for 150 units was recently completed by the Eastern Car Division of Hawker Siddeley Canada at Trenton, N.S.

Production of the 150 CP cars has been followed by the building of 100 similar units for the Canadian National, two for the Quebec, North Shore & Labrador, and one for Quebec Cartier.

All are 70-ton cars with 3,309-cubic-foot lading space. Each is equipped with a Carrier refrigeration unit fitted so that the car may also be operated in heater service. Inside temperature can be maintained at any setting from minus 10 to plus 70 deg F, regardless of outside weather conditions.

● **Plate C design.** Development of the cars—first 70-ton, 50-foot mechanical reefers to be built in large numbers in Canada—came after extensive surveys and consultation with shippers in the frozen-food, dressed-meat and perishable - food - products industries. The AAR Mechanical Division Plate C interchange equipment outline to which the cars are built permits considerably more cross-section than earlier AAR limits, making possible the high-volume lading space.

The CP reports that, while most of its dressed meat has been moving in the form of quarters, there is a trend to the shipment of complete sides, something which is easily accomplished in the higher car. The trend to shipment of sides, says CP, is particularly pronounced now in inter-plant moves for packing companies.

● **Monorail transfer system.** The 135 CP cars intended for meat service have been fitted with a monorail meat transfer system, for which the railroad is seeking patents. The transfer system permits the cars to carry over 50,000 pounds of dressed sides, compared with the per-carload of 25,000 pounds in quarters which is typical of CP ice refrigerator cars. The monorail system allows sides of meat to be rolled easily along overhead aluminum rails to and from any part of the car and along extension monorails outside the car for transfer to and from the customers' overhead meat-handling facilities.

The semi-envelope air-distribution system, capable of circulating a certain quantity of air around and through loads of frozen foods and perishables, can have its air diffusers closed so there will be no movement of air within the lading space and, consequently, no dehydration of loads of meat.

● **Foamed-in-place insulation.** The cars are the first in Canada to have foamed-in-place insulation. This, combined with extensive use of odorless caulking compounds and sealants, has produced what CP claims to be one of the best insulated and weather-tight cars in North America.

The car's 400-gallon diesel fuel tank makes possible operation without refueling for a minimum of 10 days under full load in extreme weather, and 12 to 14 days under less extreme conditions. All electro-mechanical components were chosen for trouble-free operation over long periods.

Cars are fitted with Cardwell Mark 50 draft gears. Trucks incorporate Standard Car Truck S-2-B stabilizing units, Timken roller bearings, Stucki side bearings, and Cobra brake shoes. The ABD-10 brake equipment was supplied by Westinghouse Air Brake.

Eight-foot door openings make possible the loading and unloading of palletized cargoes of frozen foods or perishables by lift trucks. The lading space is 44 feet long, 8 feet 6 inches wide and 8 feet 7 inches high. Over-all length of each car is 54 feet 5 inches; height is 15 feet 6 inches. ■

John D. Rezner
Burlington

Harold J. Clarke
CNT

William J. Girgash
C&O-B&O

Ernest G. Young
D&H

Norman B. Marvin
UP

Charles O. Showalter
UP

PEOPLE IN THE NEWS

ATLANTA & WEST POINT—WESTERN OF ALABAMA—GEORGIA.—At Atlanta, Ga., **H. C. Tomassi** appointed freight traffic manager; **H. E. Camp,** assistant to chief traffic officer; **C. E. Martin,** general freight agent, and **R. E. Thompson,** assistant general freight agent.

BANGOR & AROOSTOOK.—Linwood W. Littlefield, chief clerk, Car Service Department, Bangor, Me., promoted to assistant manager of car service and has been succeeded by **Paul E. Hayes.**

BELT RAILWAY OF CHICAGO.—I. A. Schilke, vice president and auditor, retired Jan. 31 after more than 52 years of service. **C. L. Holt,** assistant auditor, elected auditor, effective Jan. 1. Mr. Holt's successor is **W. J. Cassidy,** assistant auditor-car accounts, who is replaced by **M. Ostrowski. G. H. Carrier,** general attorney, named general solicitor.

D. R. Turner, superintendent, elected vice president and assistant general manager. Mr. Turner will continue in charge of the Transportation Department. **J. Overbey,** assistant superintendent, named superintendent-Transportation Department. **G. M. Coate,** trainmaster, becomes supervisor of loss and damage prevention and safety.

BESSEMER & LAKE ERIE.—Roland J. Hoch appointed manager of sales, Pittsburgh. Mr. Hoch formerly was manager of sales, **Duluth, Missabe & Iron Range,** Duluth, Minn.

BURLINGTON.—R. K. Wiley, inspector of stores, appointed inventory control planner, Chicago. His successor is **L. D. Wright.**

Ross VanNess, supervisor of safety, named superintendent of safety, Ottumwa, Iowa.

Thomas E. Hudson, assistant superintendent, Chicago, named superintendent of transportation there. **Ronald G. Smith,** trainmaster, Lincoln, Neb., appointed assistant superintendent, Chicago.

Burlington has made the following appointments in its new freight sales division: **John D. Rezner,** general manager-freight sales, Central Region; **William L. Malone,** assistant general manager-freight sales, Central Region; **Henry W. Ehrich,** district sales manager, Illinois-Iowa district. In the new marketing division, **Donald J. Armagost, Walter W. Duncan, Jr., Henry P. Marohnich** and **Kenneth W. Vander Bloomer** named research analysts.

Michael L. Perlman appointed junior industrial engineer, Chicago.

Joseph E. Gelb and **Edwin D. Jaycox** named district passenger agents, New York. **Frank M. Wisnew,** general agent, Omaha, appointed general agent, passenger department, Chicago.

CANADIAN NATIONAL TELECOMMUNICATIONS.—Harold J. Clarke, assistant general manager, appointed general manager at Toronto, Ont., succeeding **J. R. White,** retired.

CANADIAN PACIFIC.—R. J. Shepp, general operating supervisor, integrated data processing, office of the vice president, Montreal, appointed assistant superintendent transportation, Pacific region, Calgary, Alta.

D. C. Murphy appointed an assistant treasurer, London, Ont.

CHESAPEAKE & OHIO.—Lawrence J. Ulonska, senior assistant general coal traffic agent, Chicago, promoted to general coal traffic agent.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—The three operating regions on each road have been consolidated into four joint regions headquartered at Richmond (Southern Region), Pittsburgh (Central Region), Detroit (Northern Region) and Cincinnati (Western Region). Separate operating entities remain in Chicago and New York.

Baltimore has become the operating and transportation center of C&O-B&O; Huntington, W. Va., the engineering and mechanical center and executive offices will be maintained in Cleveland and Baltimore.

C. Vernon Cowan, vice president, Operating Department, Cleveland, has announced the following appointments: **Kenneth T. Reed,** assistant vice president—operations, Baltimore, named assistant vice president—operations-administration there. Mr. Reed will continue to be the No. 2 man in the combined C&O-B&O Operating Departments and will also provide general supervision over the roads' Mechanical Department. **R. G. Rayburn,** regional manager—staff, Cleveland, appointed assistant vice president—staff there. **E. T. Rucker,** assistant vice president—operations, Huntington, W. Va., transferred to Baltimore. **W. L. Jenkins** appointed staff assistant—administration, Huntington.

At Huntington, **John T. Collinson** named chief engineer—maintenance (former chief engineer, B&O); **Rudolph C. Tench** appointed chief engineer—construction (former chief engineer, C&O); **C. H. Manning** named assistant general manager, Southern Region (former assistant regional manager, Central Region, Huntington).

Baltimore changes: **James L. Alvord,** assistant to vice president—staff; **C. R. Riley,** assistant to vice president; **P. G. Shepherd,** assistant to vice president—operations; **T. J. Klauenberg,** general manager operations; **J. R. Frease,** assistant general manager, Central Region; **E. G. McDougle,** general superintendent of transportation; **A. W. McElvany,** superintendent power utilization; **G. C. Phillips,** superintendent transportation services; **Robert H. Abbott,** director of operations services; **C. M. Amick,** superintendent car utilization; **H. M. Davenport,** staff assistant; **John Edwards,** director of transportation; **T. W. Grose,** operations staff officer; **C. S. Johnson,** operations analyst officer;

Southern Region at Richmond—**Ralph N. Begien, Jr.,** named regional vice president; **W. K. Weaver, Jr.,** general manager and **R. G. McGehee,** assistant general manager.

Central Region at Pittsburgh—**G. S. Harris** appointed general manager; **T. E. Johnson,** assistant general manager. **A. W. Colnot,** regional manager, Pittsburgh, retires Jan. 31.

Northern Region, Detroit—**Buford G. Nash,** general manager and **Paul E. Brammer,** assistant general manager.

Western Region, Cincinnati—**A. W. Conley,** general manager; **A. W. Johnston,** general manager—staff; and **W. B. Vander Veer,** assistant general manager.

William Henschell, Jr., named general manager—superintendent, New York Terminal and **Staten Island Rapid Transit,** at Staten Island, N.Y.

J. F. Stevens appointed superintendent—Refrigeration Services, Baltimore.

William J. Girgash, manager of employee communications and editor of "Chessie-B&O News," appointed executive assistant—public relations, Cleveland. **Thomas R. Tucker,** a member of the photographic staff, appointed chief photographer.

CHICAGO PRODUCE TERMINAL.—G. McMurry, Jr., appointed freight claim agent, Chicago.

CHICAGO SHORT LINE.—W. James Betz, superintendent, Chicago, appointed general manager there.

Edward A. Peloza named trainmaster, Chicago and **Michael Di Ciocco** appointed assistant superintendent maintenance there.

CLAREMONT & CONCORD—FRANKFORT & CINCINNATI—GREENVILLE & NORTHERN—HOOSAC TUNNEL & WILMINGTON—MONTPELIER & BARRE.—Headquarters of **Benedict S. Sloboda,** vice president—operations moved from Barre, Vt., to Boston, Mass.

DELAWARE & HUDSON.—Ernest G. Young, manager of personnel, appointed director of labor relations and personnel planning. **Chester J. Becker,** assistant manager of personnel, named assistant director of labor relations and personnel planning. Abolished positions formerly held by Messrs. Young and Becker.

MISSOURI PACIFIC—TEXAS & PACIFIC.—S. M. Carter named mechanical officer—special equipment, St. Louis.

Earland Sandstrom appointed assistant traffic manager, Philadelphia. **Eugene L. Simpson** named general agent, Chattanooga, Tenn., succeeding **Stanley L. Hopton,** named general

freight agent, **Missouri-Illinois,** Chicago.

E. McNabb named special assistant-mechanical, St. Louis.

Raymond J. Marshall, assistant traffic manager, Houston, Tex., appointed traffic manager-southeastern region, Atlanta, Ga. Mr. Marshall's successor is **Alfred G. Adams,** assistant traffic manager-truck-rail rates and sales, Dallas. **R. A. Martin** named assistant traffic manager-truck-rail rates and sales, St. Louis.

SANTA FE.—F. L. Elterman, assistant general manager, Western District, Topeka, Kans., transferred to the Eastern District, Topeka, to succeed **J. B. Noe,** who retired Jan. 1 after more than 48 years of service. **L. Cena** replaces Mr. Elterman. **J. R. Fitzgerald** appointed superintendent, Middle division, Newton, Kans.

J. K. Hastings, trainmaster, Clovis, N.M., appointed assistant superintendent, Carlsbad, N.M. **L. D. Eidson** replaces Mr. Hastings. **R. H. DeHaven,** transportation inspector, Northern division, Fort Worth, Tex., named trainmaster there, to replace **W. J. McNamara,** retired.

B. J. King named bridge engineer, Coast Lines, Los Angeles, succeeding the late **E. W. Simpson, Jr.**

Ralph M. Swearingen, assistant treasurer and assistant secretary, New York, retired Jan. 31. **George E. Wasko,** transfer agent, named assistant treasurer, assistant secretary and transfer agent.

Frank L. George, Eastern freight traffic manager, New York, named freight traffic manager, Los Angeles, to succeed the late **R. J. Ward.** Mr. Georges successor is **M. M. Benya,** assistant freight traffic manager, Chicago, who in turn is succeeded by **L. A. Havener,** general freight agent, Los Angeles. **H. G. Jones,** assistant to freight traffic manager, Los Angeles, replaces Mr. Havener, and in turn is succeeded by **C. M. Janes,** assistant manager, TOFC sales and service, Chicago. **B. J. Nash** replaces Mr. Janes.

SAVANNAH & ATLANTA.—W. D. Cogdell, superintendent, Savannah, Ga., appointed general superintendent there.

SEABOARD.—W. E. Holland, Jr., assistant to general purchasing agent, Richmond, Va., promoted to assistant general purchasing agent there.

SOO LINE.—Wesley R. Emerson, manager-LCL operations, named general storekeeper, Minneapolis, to succeed **Gust B. Freesene,** who retired recently after 41 years of service. **Donald P. Hollen** succeeds Mr. Emerson.

SOUTHERN.—Burtt D. Dutcher named assistant comptroller in charge of Accounting Department functions, Atlanta. **Jack T. Bolling,** director—revenue accounting; **John M. Poovey,** director—acounting systems and procedures; **Thomas O. McConnell,** director—customer and car accounting; and **Robert T. Stinnett,** director, expenditures accounting, will report to Mr. Dutcher. **George H. Keller,** assistant comptroller, Atlanta, retired Jan. 1, after 45 years of service. **Lindell O. Todd, Jr.,** appointed manager—capital accounting, Atlanta, succeeding **Anthony A. Hessling,** who has retired after 50 years of service.

SOUTHERN PACIFIC.—Robert J. Vaughn, chief draftsman, San Francisco, named office engineer there, to succeed **Eldon H. Cofer,** who retired Dec. 31 after more than 43 years' service.

V. K. Hrncir, administrative assistant to general manager, appointed administrative assistant in the offices of vice president and general manager, Houston, Tex.

TERMINAL RAILROAD ASSN. OF ST. LOUIS.—J. A. Mathewson, Jr. appointed general superintendent.

UNION PACIFIC.—Norman B. Marvin, general freight traffic manager, promoted to assistant vice president-sales and services. **Charles O. Showalter,** general freight traffic manager, advanced to assistant vice president-rates and divisions. Both will have headquarters at Omaha.

Richard P. Coyle appointed assistant general freight agent, Los Angeles.

John R. Scogin, general traffic agent, Omaha, named assistant traffic manager, San Francisco. **Joseph S. Rezek,** chief clerk to the freight traffic manager, Omaha, advanced to general traffic agent, Gering, Neb. **Harry Hrebich,** secretary, named assistant to the traffic manager, San Francisco.

WESTERN PACIFIC.—Roy E. Larson, vice president-finance, retired Dec. 31 after more than 48 years of service. He will continue as a director.

Norman W. Menzies, superintendent of communications, retired Dec. 31, 1965, after 32 years of service. **Bruce L. McNeil, Jr.** named engineer signals and communications.

OBITUARY

Verl E. McCoy, 65, retired chief purchasing officer, **Milwaukee,** died Jan. 11 in Community Memorial Hospital, La Grange, Ill.

FMC ORDNANCE, PICTURED IN THE LOWER RIGHT IN SOUTH CHARLESTON, WEST VIRGINIA, IS TOOLING-UP FOR RAILCAR PRODUCTION.

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Robert A. Nitsch
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Charles F. Roselius
Ellcon-National

Harold E. Woodhouse
WRRS

C. T. Newton
Pullman

Robert A. Nitsch has been appointed vice president—engineering and production, **Ellcon-National, Inc.**, New York. **Charles F. Roselius** has been appointed vice president—research and development.

Harold E. Woodhouse has been appointed general sales manager of railroad products, **Western Railroad Supply Co.**, division of **Western Industries, Inc.**, Chicago. Mr. Woodhouse was recently with **Thomas A. Edison Co.** as assistant regional manager, and before that signal engineer with the **New York, Susquehanna & Western.**

Pullman Incorporated has announced appointment of **Col. C. T. Newton** as general manager of the newly created Transportation Systems Center, which will be operated within its Pittsburgh-based **Swindell-Dressler Co.** division. Col. Newton will continue as manager of the Public Works Department of Swindell-Dressler.

Arnold W. Nelson has been appointed district sales manager, **Allegheny Ludlum Steel Corp.**, Windsor, Conn., succeeding **J. F. Dolan,** who retired Jan. 30, after 40 years of service.

Thomas W. Pettus has been appointed president, **Scullin Steel Co. Divison, The Universal Marion Corp.**, to succeed **Bransford W. Crenshaw,** retired.

H. Dodge Freeman has been appointed vice president of sales—plastic liner division, **Landreth Industries. Robert L. Blickle** named to the new position of manager—sales and service.

G. K. Adams has been appointed midwest regional manager, **Marquardt Corp.**, at Chicago, succeeding **H. C. Palmer** (RA Jan. 17, p. 132). Mr. Adams was formerly district manager at New York for **Union Switch & Signal division, WABCO.**

Alfred Swab, railroad service representative, **Timken Roller Bearing Co.**, Canton, Ohio, has been promoted to railroad service engineer, Railroad Service Division, Chicago.

T. W. Howe, Jr., service engineer, **Freightmaster,** a division of **Halliburton Co.**, at Fort Worth, Tex., has been named sales engineer and will handle accounts in the southeastern United States, **E. M. Hewitt,** service engineer, Fort Worth, has been transferred to Pittsburgh. **R. P. Frye** and **G. M. Montgomery** have been promoted to service engineers, Fort Worth.

Henry O. Kirkpatrick, vice president—transport development, **Frigiking Co.**, Dallas, Tex., has been appointed vice president—research and development.

William J. Ennis has joined the **MacLean-Fogg Lock Nut Co.**, Mundelein, Ill., as manager of railroad sales. Mr. Ennis was formerly with **Scullin Steel Co.**, Chicago.

Philp A. Laret has been appointed manager, Southwestern Region, **Richard B. Byrne,** sales manager/service, and **Gerald D. Stroupe,** manager of special devices/automotive racks, **Railway Equipment Division, Evans Products Co.**

Donovan S. Thayer, assistant to the president, **United States Leasing Corp.**, San Francisco, Calif., has been elected vice president—manager of the new Railroad Division.

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Model 40 Burro Locomotive Crane Ditcher with long digging radius to permit starting ditch ample distance from track. This Model 40 Burro not only digs ditch and loads both near and far ends of cars, but also hauls its own cars with its own power.

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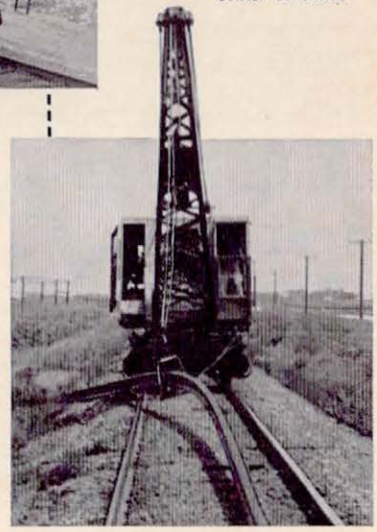

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MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the week ended Jan. 29 totaled 513,503 cars, the Association of American Railroads announced on Feb. 3. This was a decrease of 22,964 cars, or 4.3%, compared with the previous week; a decrease of 14,323 cars, or 2.7%, compared with the corresponding week last year; and a decrease of 19,183 cars, or 3.6%, compared with the equivalent 1964 week. Ton-miles generated by carloadings in the week ended Jan. 29 are estimated at 13 billion, an increase of 3.6% above the corresponding week of 1964, and 2.3% above the 1964 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, Jan. 29

District	1966	1965	1964
Eastern, including Allegheny and Pocahontas	206,699	219,237	212,185
Southern	102,714	109,000	110,212
Total Eastern and Southern Districts	309,413	328,237	322,397
Northwestern	58,532	59,407	59,099
Central Western	109,138	105,747	113,311
Southwestern	36,420	34,435	37,879
Total Western Districts	204,090	199,589	210,289
Total All Roads	513,503	527,826	532,686
Commodities:			
Grain and Grain products	56,966	44,030	56,146
Livestock	1,357	1,928	2,324
Coal	105,822	103,579	106,738
Coke	7,603	9,076	6,900
Forest Products	35,437	38,667	38,940
Ore	16,309	16,571	14,067
Merchandise l.c.l.	6,610	9,896	13,842
Miscellaneous	283,399	304,079	293,729
Jan. 29	513,503	527,826	532,686
Jan. 22	536,467	522,746	531,617
Jan. 15	544,556	532,367	499,342
Jan. 8	508,282	531,058	528,770
Cumulativetotal, 4 weeks	2,102,808	2,113,997	2,092,415
Estimated revenue ton-miles (billions) 4 weeks	52.9	50.1	49.8

PIGGYBACK CARLOADINGS—U.S. piggyback loadings for the week ended Jan. 22 totaled 19,862 cars, carrying 32,826 trailers, compared with 17,457 cars, carrying 29,095 trailers, in the corresponding 1965 week. Loadings for 1966 up to Jan. 22 totaled 57,157 cars, carrying 93,381 trailers, compared with 51,101 cars, carrying 83,875 trailers, in the corresponding period of 1965.

IN CANADA—Carloadings for the seven-day period ended Jan. 14 totaled 70,540 cars, compared with 58,870 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
Jan. 14, 1966	70,540	22,847
Jan. 14, 1965	69,004	22,671
Cumulative Totals		
Jan. 14, 1966	129,410	41,308
Jan. 14, 1965	122,291	42,326

FREIGHT-TRAIN CARS

► *Monon.*—Will acquire 111 new freight cars in 1966. Orders will be placed for 50 box cars, 40 covered hopper cars and 21 auto-rack cars. Improvement program now planned will cover equipment costing in excess of $2.7 million (including acquisition of four locomotives).

LOCOMOTIVES

► *Monon.*—Ordered four 2,000-hp diesel-electric units from Alco.

PIGGYBACK

► *Fruit Growers Express.*—Ordered 500 mechanically refrigerated trailers at a cost of $6.8 million from Dorsey, Fruehauf, Great Dane and Strick with deliveries to be completed by the end of February. The 2,100-cubic-foot vans are fitted with load restraining devices, molded fiberglass linings, sliding tandems and refrigeration units manufactured by Thermo-King and Worthington.

ORDERS AND DELIVERIES

► *Orders rise.*—Orders for new freight cars in December totaled 10,369, compared with 7,853 in November and 9,657 in December 1964. Deliveries of new freight cars totaled 8,893 in December, compared with 8,061 in November and 8,101 in December 1964. Backlog of cars on order and undelivered as of Jan. 1 showed 12,393 on order in railroad shops and 32,623 in the shops of contract car builders, for a total of 45,016. This compared with a backlog of 42,485 on Dec. 1 and 32,698 on Jan. 1, 1965. As of Jan. 1, 12,233 cars were scheduled for rebuilding compared with 6,359 on Jan. 1, 1965. Deliveries of rebuilt cars totaled 998 in December.

NEW FACILITIES

► *Elgin, Joliet & Eastern.*—Ordered Type J traffic control equipment from General Railway Signal to expand a remote control installation at Gary, Ind. The existing control machine at Kirk Yard will be enlarged to handle four added control points.

► *Gulf, Mobile & Ohio.*—Ordered two sets of Wheel Thermo-Scanner units from General Railway Signal for delivery to Meridian, Miss.

► *Pennsylvania Power & Light.*—Ordered radio equipment for remote control of two switching locomotives from WABCO's Union Switch & Signal Division.

► *Canadian National.*—Awarded a contract to John T. Hepburn Limited of Toronto for fabrication and erection of steel framework (involving 2.8 million pounds of structural steel) for a new express freight facility at its Toronto Yard.

FOREIGN

► *Japanese National Railways.*—Ordered seven Honeywell data-processing systems worth $2.5-million. The model H-200's are being supplied by the Nippon Electric Co. under a licensing agreement signed with Honeywell in 1962. The computers will be rented to JNR for approximately $50,000 a month.

YOU OUGHT TO KNOW

More aluminum cars: A recent order by the Soo Line brings to 5,281 the total number of aluminum hopper and gondola cars ordered by U.S. railroads since 1960, according to Reynolds Metals Co. Of the total, 3,751 are aluminum covered hoppers. Soo's first aluminum-car order is for 100, 4,750-cubic-foot-capacity covered hoppers, to be built by Magor. Each car, said Reynolds, will require nearly 15,000 pounds of aluminum sheet, plate and extrusions.

New NYC GP-40s in service: New York Central officially placed 50 General Motors' 3,000-hp GP-40s into service in ceremonies at New York's Grand Central Terminal. The four-axle, four-motor locomotives, first production units of EMD's new line, are assigned to high-speed freight service between New York and Chicago. They have the new 645 series diesel engine, new ac-dc transmission, and a new traction motor, the latter with a new insulation permitting an increase of horsepower output to 750 per axle.

First load for Rail Whale: The initial load for the first of Pennsylvania's two recently completed 38,000-gallon, 150-ton tank cars will be vinyl chloride moving from the Houston, Tex., plant of Tenneco Manufacturing Co. to the firm's Polymer Division at Burlington, N.J. "Rail Whales"—the winning name chosen in a contest among Pennsy employees—are considered experimental and were assembled by the railroad to demonstrate the economies of high-volume rail shipments which can often be fully competitive with water movement, according to PRR traffic studies. The road does not plan to enter the tank car business, either as a builder or fleet owner (RA, April 5, 1965, p. 7).

More action on the Board 282 front: The railroads last week got an extension until March 16 of a temporary restraining order barring a strike by the Brotherhood of Railroad Trainmen. Oral arguments in the case, involving the Board 282 award, were set for Feb. 24 in U.S. District Court in Washington. As part of this action, the carriers have asked for a declaration that the terms, conditions and effects of the arbitration award continue after the expiration of the two-year award itself. Both the BRT and the BLF&E contend that expiration of the award must carry with it a reversion to agreements in effect before the law was passed and the award handed down.

Containerization progress praised: John D. Harper, president and chief executive officer of the Aluminum Company of America, believes containerization to be the "most dramatic broad-scale development now underway in transportation." Harper, speaking to some 1,900 guests at the annual dinner of the Traffic Club of Pittsburgh, said "the vigor of the competition between your various forms of transport is exceeded only by the imaginative way in which you have introduced innovations in your services." He pointed to "exciting explorations" in urban mass transit, cargo aircraft, giant bulk railroad cars, unit trains, and computer-controlled classification yards.

'The Lark' a jet-age victim? Five airlines provide 665 flights a week between San Francisco and Los Angeles, so there just isn't enough room in the traffic pattern for Southern Pacific's "Lark," the railroad contends. SP has asked the California Public Utilities Commission for permission to take off the overnight train between the two cities. "The businessmen in those planes," says SP's passenger traffic manager Gordon Crocket, "are the same businessmen who once commuted overnight between San Francisco and Los Angeles so they could transact their business without losing working time. Today they fly the distance almost as fast as they commute home at night, while we still have to take all night for the trip."

Truck tonnage: Intercity truck tonnage in the week ended Jan. 22 was 0.8% above that of the previous week, and 8.0% ahead of the volume in the corresponding week of 1965, according to American Trucking Associations.

Current statistics

Net Income	
9 mos., 1965	$540,000,000
9 mos., 1964	500,000,000
Carloadings, revenue freight	
4 wks., 1966	2,102,808
4 wks., 1965	2,113,997
Freight cars on order	
Jan. 1, 1966	45,016
Jan. 1, 1965	32,698
Freight cars delivered	
12 mos., 1966	77,812
12 mos., 1965	69,078
Serviceable cars	
Dec. 1, 1965	1,404,835
Dec. 1, 1964	1,403,939

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LETTERS FROM READERS

In memory of Jim Lyne

Milwaukee, Wis.

To the Editor:

DEEPEST SYMPATHY FROM ALL OF US AT TRAINS MAGAZINE ON THE PASSING OF YOUR CHAIRMAN AND EDITOR AND OUR LONG-TERM FRIEND, JIM LYNE. RAILROADING HAS LOST A STOUT DEFENDER OF THE CAUSE.

DAVID P. MORGAN

New York

To the Editor:

THE TRANSPORTATION INDUSTRY HAS SUFFERED A GREAT LOSS WITH THE DEATH OF MR. JAMES G. LYNE. HIS DEVOTION AND CONTRIBUTION WILL NOT SOON BE FORGOTTEN.

HUGO K. MAYR
GENERAL MANAGER, SWISSAIR

Chicago

To the Editor:

I learned with great regret of the death of Jim Lyne, who was such an important factor in the railway industry and your own operations over a long period. He was a great editor and a worthy successor to Sam Dunn, and I thought made many contributions to business publishing.

G. D. Crain, Jr.
Chairman
Advertising Publications, Inc.

Davenport, Iowa

To the Editor:

. . . I was deeply shocked to hear of Jim Lyne's passing away, but not surprised to read that he carried on to the very end. One could sense that from his comments and his faith in railroads.

He will be hard to replace, yet he leaves a trail which his successor will no doubt follow, as a living tribute to him.

H. H. Kohn
Traffic Manager
Linwood Stone Products Co., Inc.

Baltimore

To the Editor:

I share your grief on the loss of Jim Lyne. He was one of my earliest friends in railroading and in the New York Railroad Club, and I had the privilege of flying with him to Buenos Aires to the Pan American Railway Congress in 1957. Please accept not only my sympathy, but also my compliments on the splendid tribute which you paid him in your January 24 issue.

W. Arthur Grotz
President, Western Maryland

New York

To the Editor:

I know, of course, that Jim Lyne's early passing means a great loss to his family and to the Simmons-Boardman Publishing Corporation, but it is also a grievous loss to the railroad industry, for Jim was very knowledgeable of its problems, articulate in expressing himself, and articulate also as a critic of the industry. . . .

We are going to miss Jim Lyne in the railroad industry and I am going to miss a devoted friend from whom it was always possible to learn and to get an expression of his views.

William White
President, Erie Lackawanna

Washington, D.C.

To the Editor:

We were deeply grieved to read that Jim Lyne had passed away. I had known Jim for a number of years. We had worked together on quite a few projects—when I was associated with the United States Chamber of Commerce, more recently with work in the TAA, and as an active member of the Harriman Memorial Safety Awards Committee for a number of years.

Jim was certainly a champion of the railroad industry. We will all miss him.

Harold F. Hammond
President
Transportation Association of America

Labor relations

Philadelphia, Pa.

To the Editor:

Thank you for the nice things said in the November 8 issue of Railway Age about the Pennsylvania Railroad's issue of "The Personnel Manager" on labor relations. We are, of course, delighted to think that our efforts to guide our own supervisors and managers might turn out to be of service to the rest of the industry. Thanks to Railway Age, that seems to have been the case, for we have received requests for copies or to reprint and distribute this issue of "The Personnel Manager" from 16 other railroads, two major supply firms, two governmental authorities involved in rail transportation, and one union.

S. W. Seeman, Director
Personnel Administration, Pennsylvania

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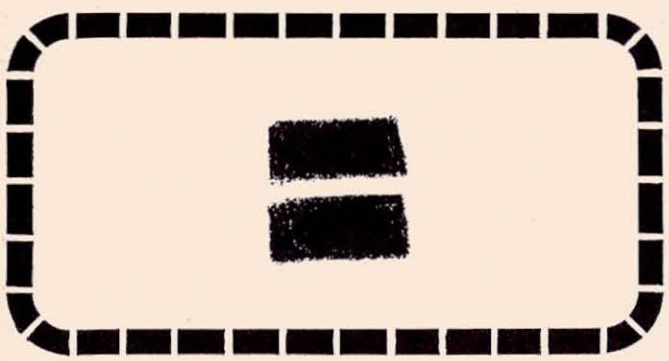

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C. H. Yiu, Managing Director

THE ACTION PAGE

How to help people think about the railroads

If the man in the street knew the following facts, it would be a good thing for all concerned.

Over 100 years ago, America's first railroads (looking in museums today like oversized toys) were faced with a terrific challenge.

There was a continent to be developed, river-and-harbor-based cities to be joined in an overland network, new industries to be served.

There was nothing else but horses and wagons to do the job.

The railroad response was magnificent—nothing less than a revolution in mechanical, civil and electrical engineering, and a revolution in manufacturing. Indeed, a more lagging response might have saved the railroads from becoming too vulnerable to trouble of many kinds.

But vulnerable they became.

Victims of their own enterprise

Because there was literally no other way for people and goods to travel faster than a loaded horse, railroads extended their lines into thousands and thousands of small-scaled communities — even though trains were by their very nature large in scale. Later, smaller transportation units such as trucks and buses would make this "local delivery" type operation utterly uneconomic.

Because the race of the railroads to keep up with the growth of the country discouraged duplication of service, the railroads naturally developed in a pattern of monopoly. There were abuses—as in oil, electric power, telephone service, patent control—and the railroads were to be chained with monopoly-type regulations. This would burden them cruelly when cars, trucks, buses and airplanes made transportation fiercely competitive.

Because so much that moved had to move by train, the railroads became convenient "tax collectors." It was easier to collect taxes from the railroad —which would in effect pass them on to all the people in the form of higher charges—than it was to collect them from people individually. The time would come when the railroad's economic power would shrink but the tax load would not shrink.

The wonder is that when everything went against the railroads they stood up against it as well as they did.

For this, great credit must be given to a tremendous performance by thousands and thousands of skilled and committed railroaders.

Great credit must also be given to the basic, bedrock logic of the railroads—and this is something about which the man in the street knows very little indeed (dangerously little when you consider that the political and economic climate in which the railroads operate boils down to no more than the views of the man in the street).

He's apt to think of the railroad as a colorful chapter in the history of transportation, a chapter drawing to a close.

To dramatize for the man in the street the overwhelming logic of the railroad is the aim of the fable "How Bob Smart Invented the Train" on pages 25-27 of this issue.

You may want to tear it out and mail it to somebody. You may want to post it on a bulletin board. You may want to obtain reprints or posters*. You may want to reproduce it in a company publication, in which case Railway Age will happily approve your written request for permission to reprint.

Actually, "How Bob Smart Invented the Train" is quite an understatement of the technical superiority of the railroad concept as seen in the second half of the twentieth century.

Guided movement is built in

The key to modern mechanization—the one thing without which all of a factory's motors, tools, sensing devices, programming equipment, etc., would be utterly useless—is *guided movement*. This exists in the assembly line, the conveyor, the transfer machine, the guiding slides on which tool heads travel. Without guided movement, you're nowhere in factory automation—just as without guided movement you're nowhere in automated transportation.

"Automation" is one of those flip-flop words that is a villain one moment, a hero the next. As of now, with demand threatening to bump our production capacity ceiling, automation looks pretty attractive.

The aim of civilization is to reduce work in producing a given amount of goods or services, not make work. Fewer people must perform simple, mechanical-style functions that machines perform better and cheaper . . . more people must be efficiently applied to making things of which we don't have enough.

With its inherent and fantastically efficient guided movement system—its rails—the railroad is strongly qualified indeed to be the basic transportation method of the future.

*Reprints may be ordered by writing Railway Age, 30 Church Street, N.Y., N.Y. 10007 (Att. George Johnson)

Photos worth a thousand words? Well . . .

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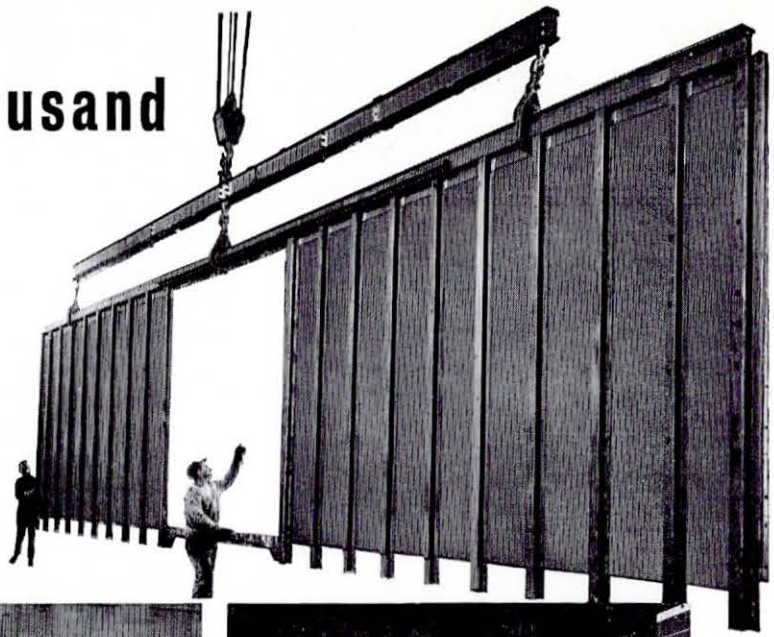
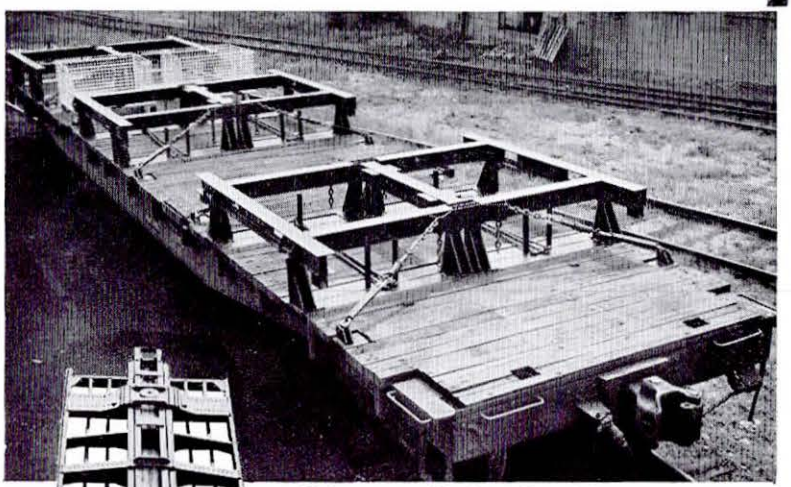
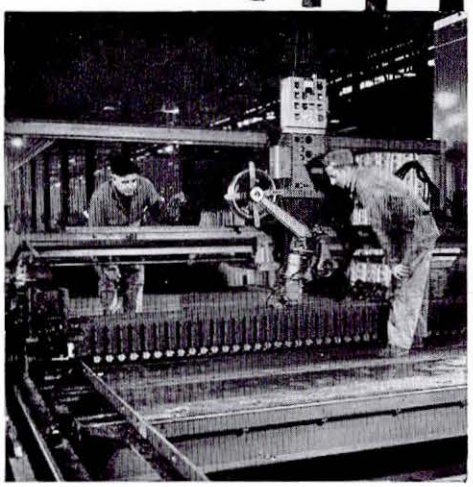


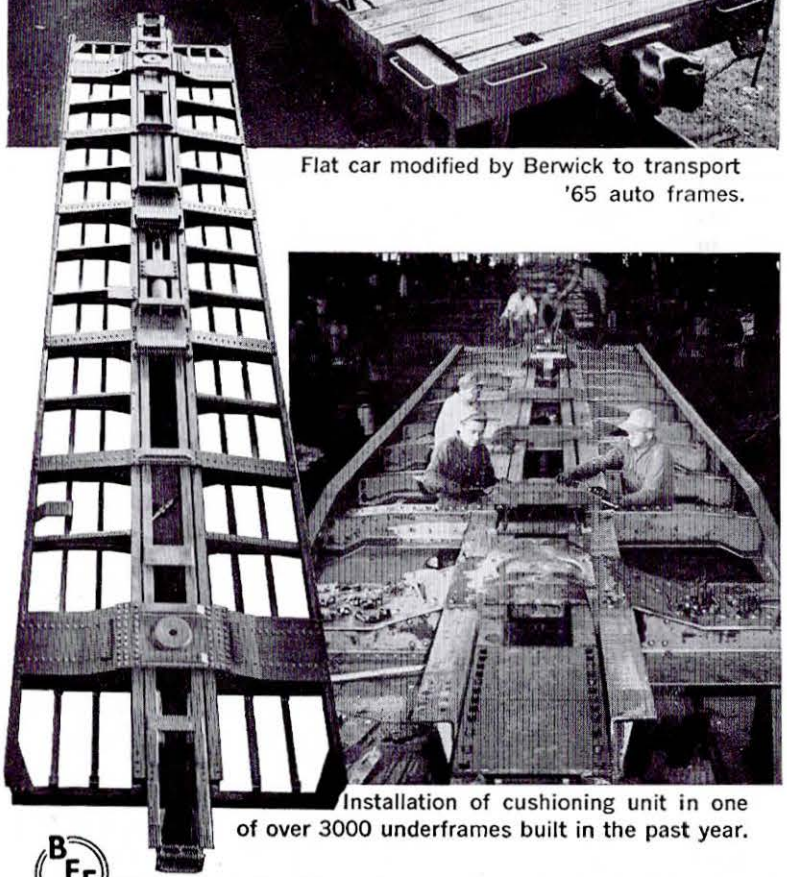
One of 1200 car sides built for a large northeastern railroad.



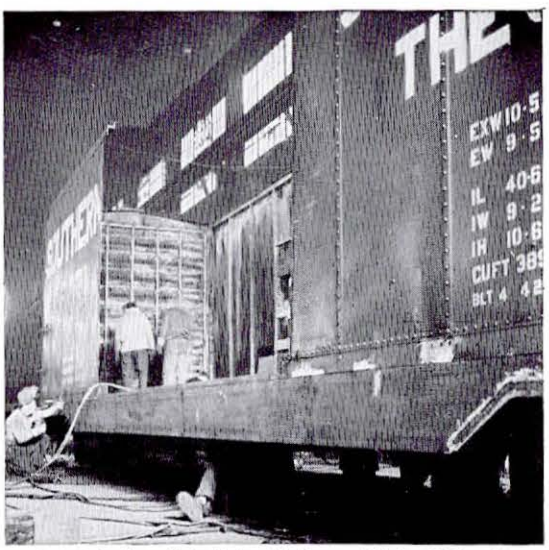
Flat car modified by Berwick to transport '65 auto frames.



Automatic equipment used in car side welding.



Installation of cushioning unit in one of over 3000 underframes built in the past year.



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